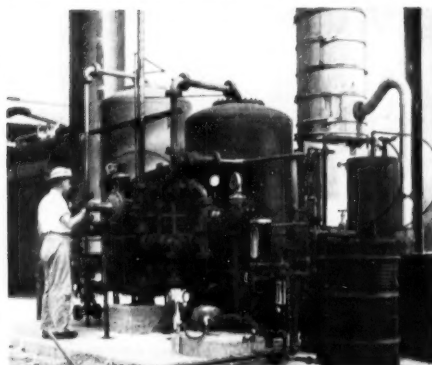


Chemical Week

May 1, 1954

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Mine-Mill, denounced by many, exiled by the CIO, it's thriving on hostility p. 16

► It's chemicals off the hoof as meat packers now diversify into higher-margin products . . p. 20

► Styrene with a difference: new producer, unique plant, novel patent-flanking process . . p. 28

Easier supply of lithium unshackles grease output; new formulations fight for market . p. 55

► Home-owners are the target as extinguisher makers open fire on untapped outlets p. 61

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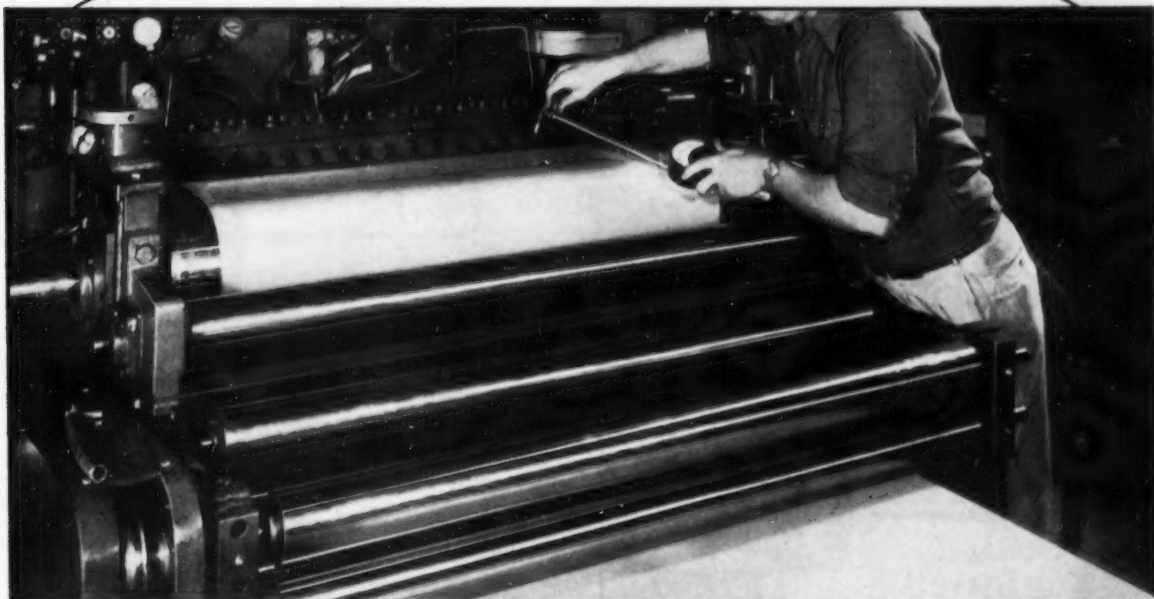


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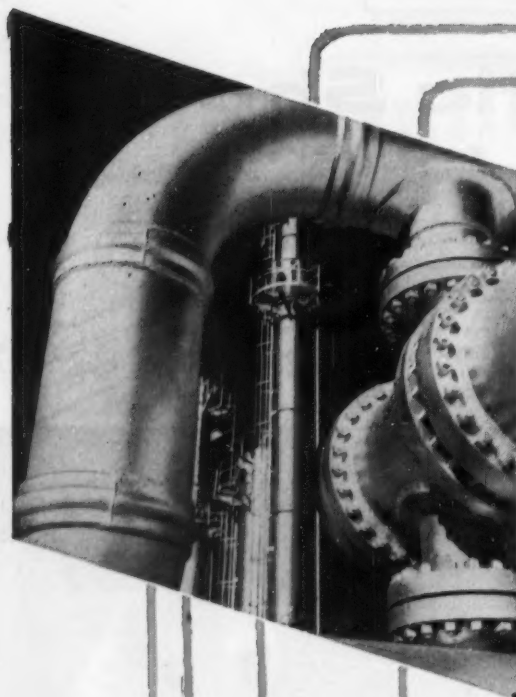
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Chemical Week—

Volume 74

May 1, 1954

Number 18

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May 1, 1954 • Chemical Week

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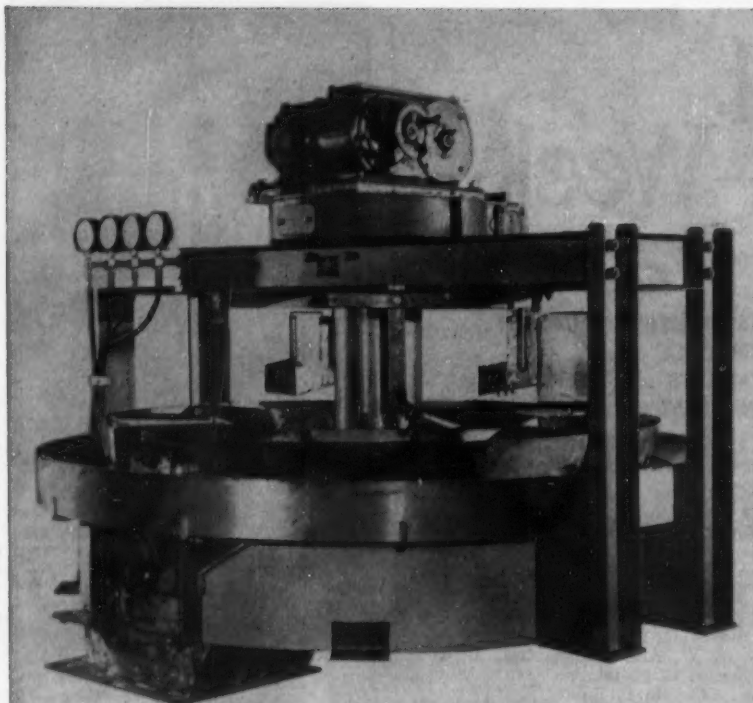
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OPINION....

Oil for Future

TO THE EDITOR: Your news article, "Din over Depletion," (April 3) calls attention to the attacks made upon the federal depletion allowance and to figures taken from a Congressional committee report showing the large tax savings imputed to several oil companies through tax deductions for depletion. You also point out that "For oil companies, depletion allowance is taken as 27½ % of gross income."

While I'm sure it was not intended, I think your article gives to your many readers the impression that the depletion allowance is a "loophole" in the tax law through which large integrated oil companies escape paying their fair share of the tax burden and also have an unfair advantage over others—none of which is true.

In the first place, the percentage depletion allowance of 27½ % does not apply to gross income from refining, transportation or marketing, but is specifically limited to the value of crude oil produced. There are other restrictions in the law, which in many instances reduce the allowance to a rate computed upon cost of the oil reserves.

Secondly, to the extent the depletion deduction is based upon cost of exploration, acquisition and development of producing properties, it is no different from the depreciation allowance on plant and equipment of a manufacturing concern.

Moreover, the depletion allowance applies uniformly to the small and large operators, and integrated companies have no advantages whatsoever over the small independent producers. Congress has thoroughly examined the depletion allowance on numerous occasions over the past 25 years and found it fair and reasonable in view of the risks involved in hunting for oil.

A still further important point is the fact that oil companies spend far greater sums than the depletion allowance each year in exploration in an effort to maintain adequate reserves to meet the increasing demand for oil.

These exploration costs have in-

CW welcomes expressions of opinion from readers. The only requirements: that they be pertinent, as brief as possible.

Address all correspondence to: W. A. Jordan, Chemical Week, 330 W. 42nd St., New York 36, N. Y.



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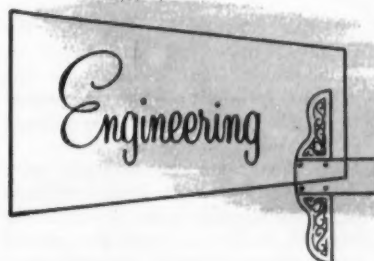


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OPINION.

creased greatly from year to year and the oil companies' costs in past years, on which their profits are largely computed, are far less than the costs of replacing the reserves now being consumed.

The chemical industry has a big stake in encouraging exploration for oil and gas and in providing the incentives necessary to keep the oil and gas industry in a position to supply ample quantities of chemical raw materials for the years to come . . .

GEORGE L. PARKHURST
Chairman of the Board
Oronite Chemical Co.
San Francisco

We agree. Our statement was not intended, of course, as a criticism of the tax law, nor should it carry any suggestion that we were saying "loop-hole."—Ed.

Violent Opposition

TO THE EDITOR: In reading your opinion of the Carlino-Milmoe bill, we are in violent opposition to your statement that "medical men are employed by incorporated hospitals [without loss of dignity] . . ." This implies an untruth.

No registered hospital is incorporated as a physician and no medical man in a hospital can perform a physician's duties unless he is a licensed physician. The fact that the hospital is incorporated has no bearing on the work of the physician. Thus his work loses none of its dignity.

Kindly list for me the most valid reasons for wishing this legislation to change our existing laws.

If we can find other than financial advantages for a corporation, we wish to be informed. . .

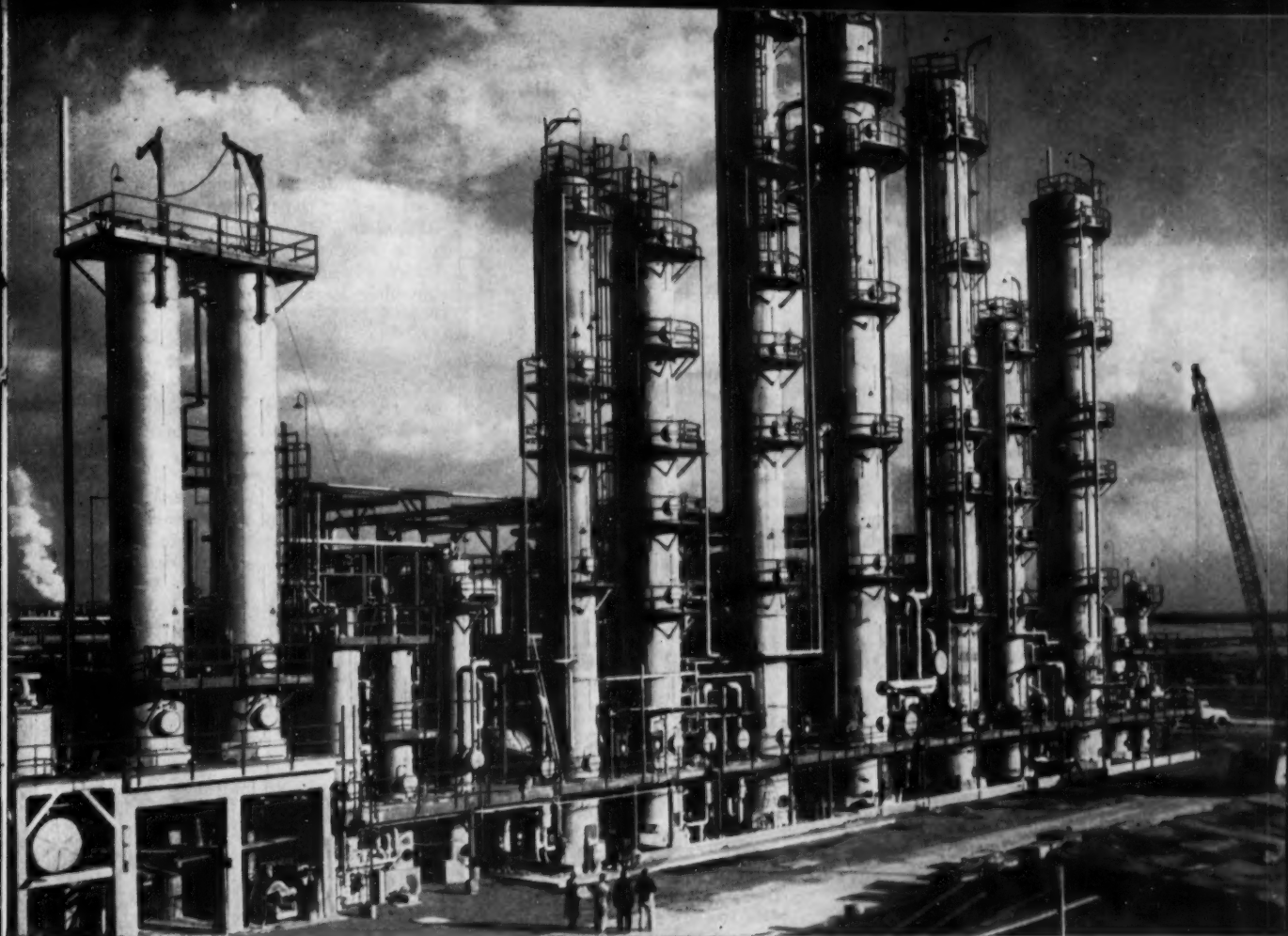
J. M. CRONE
Midstate Industrial Design
Ithaca, N. Y.

TO THE EDITOR: In defending the Carlino-Milmoe bill you speak of pseudo-logic. Your pseudo-logic forgets that hospitals are not empowered to practice medicine; nor are colleges in themselves able to teach.

By the same pseudo-logic with which you defend the Carlino-Milmoe bill, you should wish to empower hospitals to practice medicine, permit technicians to perform operations, and trust to doubtful ethics and abilities.

Your reasoning smacks of political doubletalk. It has been twisted upon itself to obscure the truth.

All engineers, whether in corporate practice, or private, in places of re-



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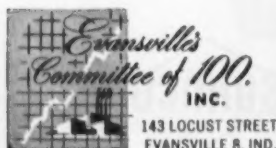
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OPINION.

sponsibility affecting the public weal, must be professional engineers to prevent opening the practice to the unscrupulous. The corporations are quite able to practice engineering under this limitation, unless they are unwilling to pay for the abilities involved . . .

DAVID S. SMITH
Rochester, N. Y.

To THE EDITOR: In my opinion licensing corporations is just one step backward . . .

Such statements as: "medical men are employed by incorporated hospitals" and "professors are employed by incorporated colleges" are such half truths that they do not describe the real relationship and they smack of the same reasoning as recently portrayed politically.

Corporate organizations in engineering should be no different from hospital organizations where doctors are free agents. Would you give a hospital a medical license?

It is further my opinion, that your organization shows extremely poor taste to take the side of corporate organizations . . .

WILLIAM C. EMERICK
Ardley, N. Y.

Perhaps this comment, which we also made, was overlooked: "Engineering should, naturally, be done by engineers. (And that the bill so provides.) But a corporate setup to further the practice of engineering does not militate against that. It merely permits the utilization of the advantages of corporate organization—advantages that virtually all other businesses capitalize upon."

Engineering is a profession; its practice is a business.

Many country doctors are remarkable practitioners and serve their communities well; few, however, would fight the establishment of hospitals or clinics, which would further the progress of their profession.—ED.

DATES AHEAD

Electrochemical Society, annual meeting, LaSalle hotel, Chicago, May 2-6.

Air-Pollution Control Assn., annual meeting, Patten hotel, Chattanooga, Tenn., May 3-5.

Forest Products Research Society, national meeting, Grand Rapids, Mich., May 5-7.

National Cottonseed Products Assn., annual meeting, Shamrock hotel, Houston, May 7-11.

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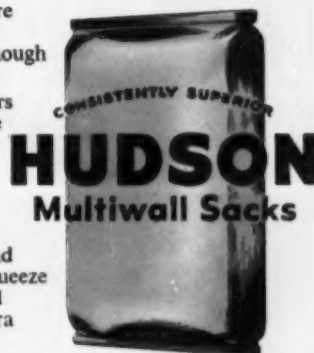
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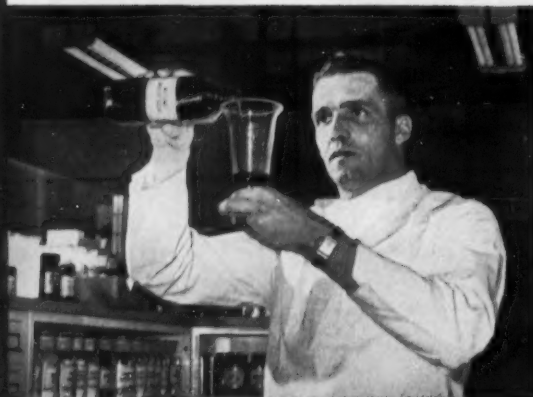
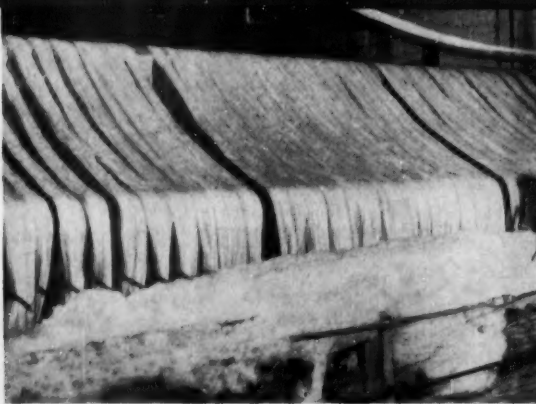
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NEWSLETTER

Look at the lead and zinc picture for a tip-off to tariff trends. The U.S. Tariff Commission's report to Congress last week didn't recommend duty hikes. Nevertheless, it strongly hints that such proposals will be made to the President next month on the metal miners' plea for greater protection under the escape clause of the Trade Agreements Act.

Says a high Tariff Commission official pointedly: "In view of its findings for Congress, it's difficult to see how the commission can fail to recommend tariff increase to the President next month."

Actually, the recent report wasn't supposed to make any recommendations. It's simply a voluminous analysis of the lead-zinc situation—prepared in accordance with resolutions made last summer by the Senate Finance and House Ways & Means Committees for an investigation of the domestic industries—with emphasis on import effects.

Its major findings:

- Domestic lead and zinc mine operators' net profits dropped 17% between 1950 and 1952—and if first-half-1953 figures are projected, the drop is a steep 80%. During the same period, ratio of net operating profits to sales dropped 78%.
- Employment dropped 20% (43,000 to 34,500) from Jan. 1952 to Oct. 1953—and probably much more since then.
- Meanwhile consumption—and imports—skyrocketed, while U.S. production steadily dropped.

Are technical men as scarce and starting salaries as high as many industry men have been led to believe? No, claims Richard Moore, Foster D. Snell's personnel man, who made his own survey of the situation in the New York area.

The shortage, contends Moore, is at the years-of-experience level—not new college graduates: "Starting lab openings in chemistry are not up to the level of 1953. Any man should not be deluded into thinking that there are jobs galore. Companies are getting choosy, are selecting fewer new men."

Salary prospects, too, have been overinflated: "Top starting salary in the New York area is \$365/month."

Moore finds that many large companies are paying around \$325/month; smaller companies, \$275-300. "By offering \$300, most companies in the New York area can fill their openings without trouble."

Du Pont's Crawford Greenewalt this week made a plea for a prosperity-oriented tax program, came up with facts and figures to support his arguments for reform along lines that would bolster the nation's over-all economy.

In the next 10 years, he pointed out, industry must invest \$250 billion in new productive facilities. He gets the figure this way: Our present investment per capita is \$4,000; population is growing at the rate of 2½ million a year; thus it takes \$10 billion a year just to stay where we are. But our standard of living increases at an average rate of 2½% a year, so another \$15 billion of annual investment must be added to afford

progress at our present rate. That adds up to \$25 billion a year—part of which can come from depreciation reserves, retained earnings and loans, but a substantial part of which must come from new risk capital.

But what of the money available for risk? The money raised by surtax rates above 50% provides only 1½% of the federal government's total tax take; gift and inheritance taxes provide a like amount, as do levies on capital gains. The government thus gets less than 5% of its revenue from sources that might be expected to finance industrial expansion—"a high price if the cost is reduced initiative and a reluctance to provide risk capital."

Greenewalt also calculates that it takes \$12,000 capital to provide one industrial job. And if \$12,000 goes into industry rather than to the tax collector, the government will take in \$1,500—or a 12½% return—in individual and corporate taxes, excises, and tax on dividends.

Du Pont will get along all right, he concedes; but "small enterprises—and in this area one finds the greatest potential for the future—must look for their capital primarily to the individual investor willing to take a long gamble."

•
Makers of agricultural chemicals will soon have solid statistical data to help them in their planning: the government will compile current facts and figures on worldwide pesticide production, supply and trade.

The Commerce and State Depts. and the Bureau of the Budget have approved a questionnaire form that will be sent to commercial attaches in every country where the U. S. has diplomatic representation. Different statistics are scheduled to be reported on a monthly, quarterly or annual basis.

•
More chemical news from different Washington agency: General Services Administration has sold to Midwest Grain Processing Co. (Muscatine, Ia.) the alcohol-from-grain plant built at Muscatine during World War II. The company plans to produce vitamin B₁₂, riboflavin and similar fermentation products.

•
The chemical process industries are gratified with President Eisenhower's nomination of Brig. Gen. William Creasy to be new chief of the Chemical Corps; nor was it completely foreseen, since it's not often that a career Chemical Corps man is promoted to chief officer. Creasy is not only a West Pointer but also a chemical engineer (M.I.T.) and is familiar by long association with problems of Corps-industry cooperation.

•
Another chemical man is about to do a six-months' stint in Washington. Carbide and Carbon's John Field will go down later this month, will take over in June as assistant administrator of Business & Defense Services Administration, replacing the incumbent, Walter Edwards.

•
In the works for some time (CW, March 6, p. 59), a silicone water-repellent for wool was disclosed last week by Dow Corning Corp. Pacific Mills is now applying the finish; treated garments will be on sale within a few months.

Cost of the treatment is 10-15¢/yard (8-oz. fabric); and it must be applied at the mill. Not only does treated fabric repel water; it also resists stains, retains crease, has higher seam strength, better abrasion resistance and improved hand.

... The Editors



... TO "SELL" SPORTING GOODS

Quick-drying lacquer made with Hercules® nitrocellulose enhances the appearance and protects the surfaces of baseball bats, bowling alleys and pins, hockey sticks, golf clubs. Powder for shotgun shells, plasticizers for vinyl beach balls and floats, and many other Hercules products help "sell" sporting goods.

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HERCULES



... TO BUILD MODERN BOATS

Not only boat hulls, but automobile bodies, office partitions, and other large products can be fabricated from plastic laminates containing Hercules hydroperoxide catalysts, also used in synthetic rubber.

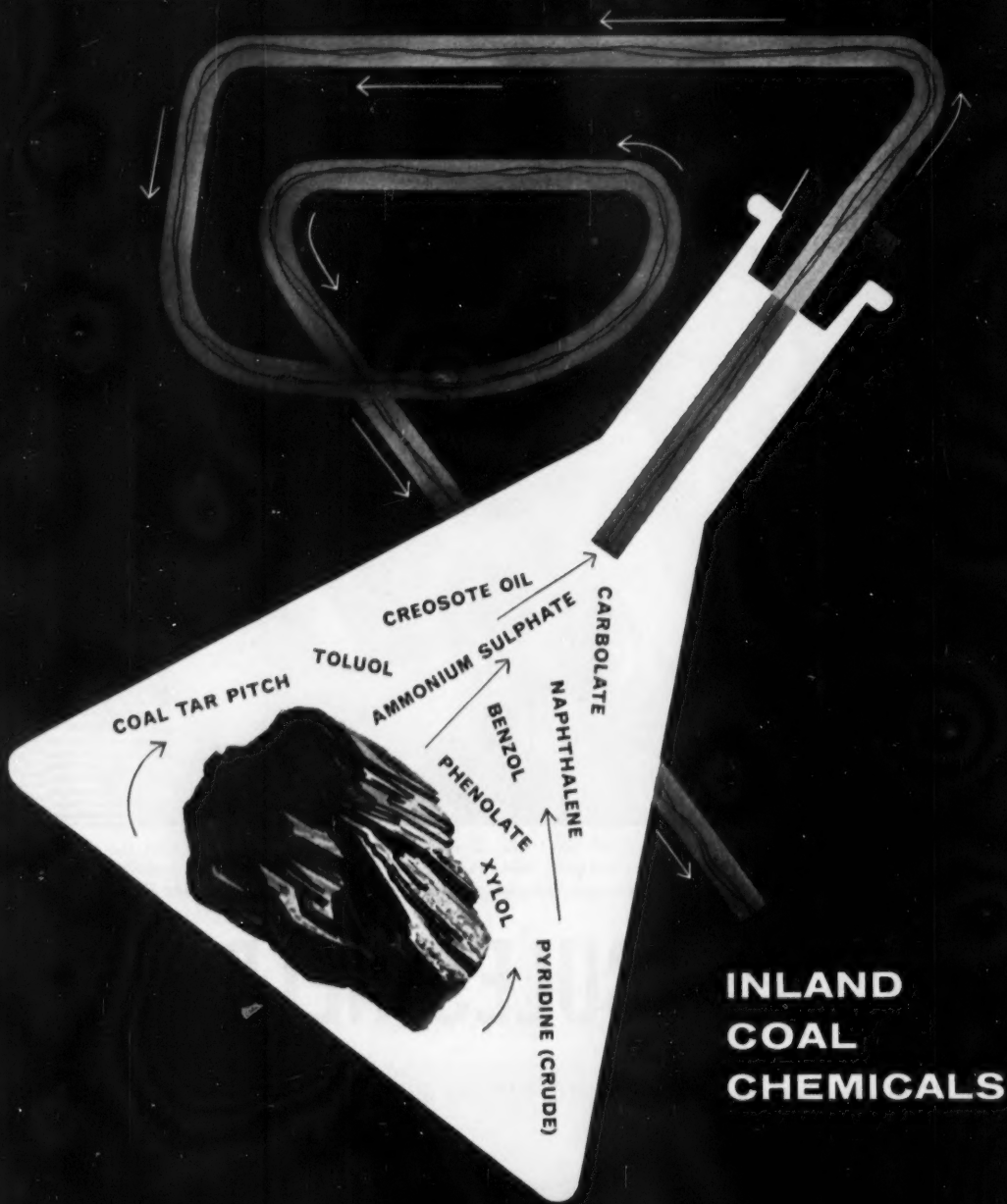
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GS4-4



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BUSINESS & INDUSTRY . . .

Every Employer a Sentinel

Like goulash, the loyalty question always has been complex, highly seasoned, and capable of awaking sharply divergent reactions in different people.

What's new about the loyalty question now is the amount of red tape involved. In olden days, loyalty was generally decided by snap judgment: "In thy face," King Henry VI tells a trusted follower, "I see the map of honor, truth and loyalty." But in 1954, loyalty has become a big and intricate administrative problem for industry as well as for the federal government.

Pervading governmental thinking at the moment—for better or for worse, justifiably or unjustifiably—is the furor swirling around J. Robert Oppenheimer. It, undeniably, will influence the course of upcoming legislation.

To all chemical companies that are contractors or sub-contractors for the Defense Dept. or the Atomic Energy Commission, or which might become contractors in the future, there are important implications in legislation being drawn up this week by the Justice Dept. and in the new Industrial Security Manual published last week. Effect of the new and proposed regulations: To give employers more responsibilities, more authority in safeguarding the nation's industrial security.

Suppliers Included: One way in which chemical plants may be affected by the bills being drafted by Attorney General Brownell and his staff: A clause recognizing that suppliers of essential materials and services also are in the defense program. For example, a plant making B-36 bombers for the Air Force is wholly dependent on a private power plant for its operating power; present security rules don't cover the power plant, even though a saboteur in the generator unit could put the bomber plant out of operation as readily as an enemy agent in the aircraft factory itself.

While the federal government still will make the investigations and decisions on loyalty of key defense workers and scientists, the employer is

charged with the duty of reporting "any information coming to his attention concerning existing or threatened espionage, sabotage, or subversive activities at any of his plants, factories, laboratories or other sites" at which defense material is planned, produced or stored.

Also, the employer is enjoined to be on the look-out for "information concerning any of his employees having access to classified information which indicates that such access is not clearly consistent with the interests of national defense."

Clearance by Employers: Management is authorized to decide which



OPPENHEIMER: For better or worse, his case will shape the law.

employees should have access to "confidential" (not "secret" or "top secret") information. In granting this clearance, the employer must make sure that the employee's records are in order as to U.S. citizenship and he must feel sure "that the employee's access to confidential information is clearly consistent with national security."

The bill now being written—and which may be submitted to Congress this week—would change present regulations by permitting a defense con-

tractor to discharge an employee found to be a potential saboteur.

Probable procedure: Upon receiving a "tip" about a defense worker or scientist, the Federal Bureau of Investigation would run a security check. Some other agency—not yet designated—then would hold a hearing to determine whether the evidence indicates that the individual is or is not "suitable"—securitywise, that is—for the job he holds.

Of course, there'll have to be provision for court appeal from adverse findings. And the definition of "likely to engage in espionage or sabotage" will have to be minutely spelled out.

Brownell is also readying a bill to eliminate Communist control of either a company or a union. Directed, of course, at allegedly Red-dominated unions, Brownell's idea is to allow the subversive activities control board to hold hearings and determine whether a union (or company) is so dominated and in a position to "substantially damage our national security."

For most employers, the prospect of being called upon to police and judge their employees' loyalties is an unpalatable one. But it can't be denied that a security problem exists; and the prevailing view in Washington is that to cope with that problem, every defense employer must serve as a security sentinel.

Help from Uncle Sam

Another chapter in the saga of Henderson, Nev.'s struggle to free itself from "domination" by Basic Management Inc. (CW, June, 20, '53) may be written as the result of a bill introduced in the Senate last week by Nevada's Senator Pat McCarran. In effect, the bill would authorize sale of 7,018 acres of federal land (now managed by the Dept. of the Interior) to the city of Henderson.

City officials, McCarran reports, feel that the city has outstripped its tax base for support of needed municipality operations, will gain room for needed expansion from the sale. When submitted to the chemical companies that comprise BMI (Stauffer, U.S. Lime, Western Electrochemical, Titanium Metals and Piche Manganese), no recommendations for changes in the bill were suggested.



MINE-MILL OFFICERS, like Pres. John Clark (ex-copper miner) . . .



MOSTLY ROSE FROM RANKS, like Maurice Travis (ex-refinery worker), pictured (left) on day he succeeded Reid Robinson (right) as president in 1946.

Cohesion in Combat: A Union Besieged

Does a labor union have the right to represent American workmen if many of its policies are ideas that are supported by the Communist Party of the U.S.?

That's the question posed this week by the 61-year-old International Union of Mine, Mill & Smelter Workers, a "left-wing" union that represents possibly 5,000 employees in U.S. chemical and fertilizer plants and perhaps 90,000 workers (30,000 of them in Canada) in mines, smelters and refineries that provide numerous raw materials for the chemical process industries.



VICE-PRES. HOWARD: Showpiece of aggressive policy on racial equality.

Mine-Mill—now an independent union, formerly affiliated with IWW, next with AFL, and then as a charter member with CIO—charges that management, government, the press and "right-wing" labor unions have been attacking it to destroy genuine trade unionism, hiding that motive under the cloak of anti-Communism. In reply, Mine-Mill's many adversaries say they simply want to free the American labor movement from Communist influence.

New Look of '46: There's no denying the fact that Mine-Mill has been under attack from all sides in recent years—ever since the start of the Cold War, in 1946, made Americans see their home-grown Marxists in a new light—viz., as possible agents of an unfriendly foreign power. Examples of these assaults:

- Mine-Mill—along with several other unions that had backed various Communist-approved causes (such as the Progressive Party's campaign in the 1948 election)—was ejected from the CIO in 1950. This amounted to a kind of excommunication; by implication, employers were practically invited to tear up all contracts with the ousted union and wait for the Mine-Mill locals to be taken over by the United Steelworkers (CIO).

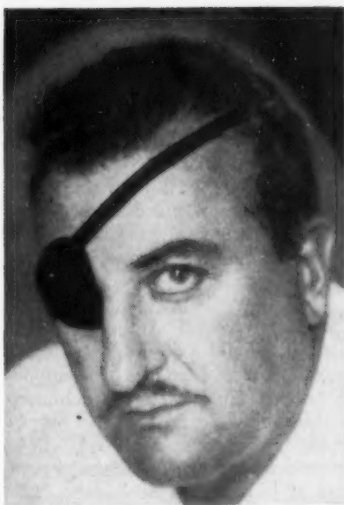
- Raids and attempted raids have been frequent since then. For instance, Mine-Mill Local 414 at the American Potash & Chemical plant, Trona, Calif., was raided by District 50, United Mine Workers, which now is being raided in turn by several AFL

unions (CW Newsletter, April 10).

- Some companies have declared war against Mine-Mill, hoping their employees will either switch to a less militant union or else give up unionism altogether. Mine-Mill charges that this is exactly the game being played by one employer that—according to the union—has refused to bargain in good faith on wages: (a) as specified in the contract's wage reopener clause; (b) as directed in an arbitration award; (c) when Mine-Mill defeated an AFL raiding attempt and was recertified by the National Labor Relations Board; and (d) after the



VICE-PRES. LARSON: In his Western district, two big Mine-Mill triumphs.



TRAVIS AGAIN, now wearing eyepatch as souvenir of battle with rival union.

members authorized a strike if necessary.

• Federal, state and local government officials have sided against Mine-Mill on various occasions. Now pending: NLRB's move to decertify the union because its controversial secretary-treasurer—43-year-old California-born Maurice Travis—is suspected of having falsely signed the non-Communist affidavit required by the Taft-Hartley labor law. In announcing that he was resigning from the Communist Party to sign that affidavit five years ago, Travis added that his guiding principles would be unchanged. NLRB contends that this means that Travis, who's regarded as key man in the union's high command, is still a Communist at heart. Mine-Mill lost the first round of the fight over this point in federal district court, is considering an appeal to circuit court.

Proof Disputed: But while it's easy to see the multitude of punches being thrown at Mine-Mill, it's not so sure that the "Communist control" charges could be proved in strict judicial certainty.

True, the CIO's Potofsky committee succeeded in showing that Mine-Mill had followed the party line up to the time of the bounce from CIO. True, Mine-Mill has stayed in tune on the Moscow melody in the four years since then. Currently, Mine-Mill and the Communists are in agreement on such issues as these:

- Ban on atomic and hydrogen bombs.
- Negotiated peace in Indochina.
- U.S. to bring home all troops now on foreign soil and refrain from further "intervention."

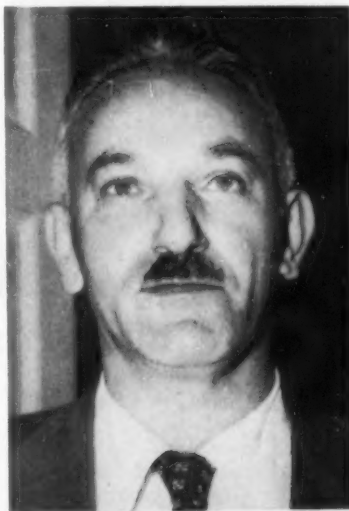
• Unrestricted East-West trade.

More circumstantial evidence: *The Daily Worker*, the voice of the Communist Party of the U.S., occasionally comments—with disdain or disgust—on the actions of "right-wing" unions; but it reports frequently and favorably the doings of Mine-Mill and several other "left-wing" unions. Still another coincidence: the fact that some Mine-Mill leaders have "Communist backgrounds"; this applies particularly to Travis and to the union's general counsel, sharp, dapper Nathan Witt, New York labor lawyer. Witt served as executive secretary of the NLRB, 1939-41, and was named by Whittaker Chambers as having been a "Communist sympathizer" in Washington during the New Deal era.*

In Illustrious Company: But do these things prove that this union is now under "Communist domination"? After all, Mine-Mill is not alone in its opinions: Pope Pius XII has denounced the H-bomb; Britain's Conservative Prime Minister Churchill has called for freer East-West trade; and pro-McCarthy publisher Robert McCormick of the arch-Republican *Chicago Tribune* is indignantly opposed to the use of U.S. troops in Indochina. One chemical executive whose company has a contract with Mine-Mill tells CW: "There has been no evidence of Communist doctrine in any of our negotiations with that union."

Recent events have tended to confirm the union's assertion that its pro-

* To this, Witt retorts that Congressional investigators admitted there were no espionage charges against him, and that he was merely one of "those who supported Franklin D. Roosevelt in his magnificent policy of complete unity with our wartime allies . . ."



ATTORNEY WITT: Does anti-union bias masquerade as anti-Communism?

gram and leadership are based on solid rank-and-file support. These included the 4,099-to-2,185 vote by Montana copper miners to stay in Mine-Mill rather than follow their former local leaders into the Steelworkers' union; a somewhat closer vote by Texas smelter workers rejecting urgings by press, radio and public officials to switch to the Steelworkers; the uncontested reelection of Mine-Mill's 63-year-old Pres. John (Jack) Clark at last fall's union convention; and the re-election, by 2-to-1 margin, of Travis, who was opposed by a Montana "rebel" who argued that Travis should be defeated because of his Communist background.

This makes it appear that Mine-Mill members hold the balance of power in their union, are free to accept or reject their leaders' proposals. So far, the members are sticking by their union, despite all the name-calling that attends each election. It may be that Mine-Mill—which boasts that it was "born in jail"—actually thrives best in a hostile environment.

Due for an Airing

Legislation proposed by the Joint Committee on Atomic Energy to clear the way for a civilian atomic industry will get a thorough airing early this month. Ticketed for priority rating in committee, public hearings are scheduled to be followed as quickly as possible by a final drafting of the bill that will be presented to Congress so that House and Senate debate can get under way during the current session.

And if present sentiment is any indication of how swiftly matters will be wrapped up, the committee stands to get its wish. President Eisenhower and the Atomic Energy Commission reportedly are solidly behind the proposed legislation; in general, the committee's bill includes the incentives urged by private industry at previous hearings.

In capsule form, here's how the bill reads as it stands now:

- Private firms will be allowed to retain title to plants built for production of nuclear power, will be permitted to secure patents on any new inventions or processes as long as they're not directly related to weapon development (CW *Newsletter*, April 24).
- The Atomic Energy Commission will assume quasi-judicial duties—license private firms and public groups to build and operate nuclear power plants.
- Fissionable material used as fuel,

however, will be considered government property—whether originally furnished by the government or produced as an adjunct to power production.

- Applicants will have to satisfy AEC rules and regulations regarding financial and technical qualifications, health and safety precautions, feasibility and operation of facilities. If turned down for any reason, they will be given the right of appeal to a three-man review board or to the federal courts—unless both AEC and the National Security Council decide that the problem conflicts with security regulations on restricted material.

- In case of a national emergency, the government will have full power to withdraw fuel materials.

- To safeguard restricted material further, engineers and designers will be required to pass clearance checks by the AEC; stiff penalties are included to penalize those relaying information to unauthorized persons.

Very little opposition is expected to the broad lines of the committee's proposal; any protracted discussion that takes place will probably concern interpretation of specific provisions of the bill. Quick passage, moreover, is to the interest of chemical companies, power companies, equipment companies most closely tied into the picture. What will happen in the House and Senate is another question altogether. No one in Washington is willing to predict how long debate will drag into the weeks ahead.

COMPANIES

Alrose Chemical Co., Cranston, Mass., has merged with its parent organization, Geigy Chemical Corp., New York, will expand current plant facilities to allow for greater output of petroleum additives, corrosion inhibitors, other specialty chemicals.

Spiking local rumors that Du Pont's Spruance rayon plant will leave Richmond, Va., Henry B. Du Pont, vice-president, says that company officials feel the current state of the textile industry is a temporary slump "due to overcapacity." Further: "The textile industry is a basic industry; the current economic slump is probably a very healthy thing."

Another company incorporation:

- **Qualified Research Products, Inc.**, chemicals, has filed a charter of incorporation in Dover, Del. No capital listed.

- **Stanolind Oil and Gas Co.** has hired

the Lummus Co. (the firm engaged to carry out the evaluation of its recently acquired Brownsville plant) to handle revamping and new construction work necessary to put the gas synthesis facilities into operation. Work will start about Aug. 1.

Directors of W. R. Grace & Co. and Davison Chemical Co. have approved the merger of Davison into Grace. Under terms of the proposed merger each share of Davison common will be exchanged for 1.4 shares of Grace common; each share of Davison preferred (\$50 par) will be exchanged for 4¼% convertible subordinate debentures to be issued by Grace, plus \$5 in cash. Final negotiations await ratification by stockholders of both companies next week.

EXPANSION

Resins: Resin capacity of American-Marietta Co.'s Seattle plant will be expanded 25% in a program costing over \$75,000.

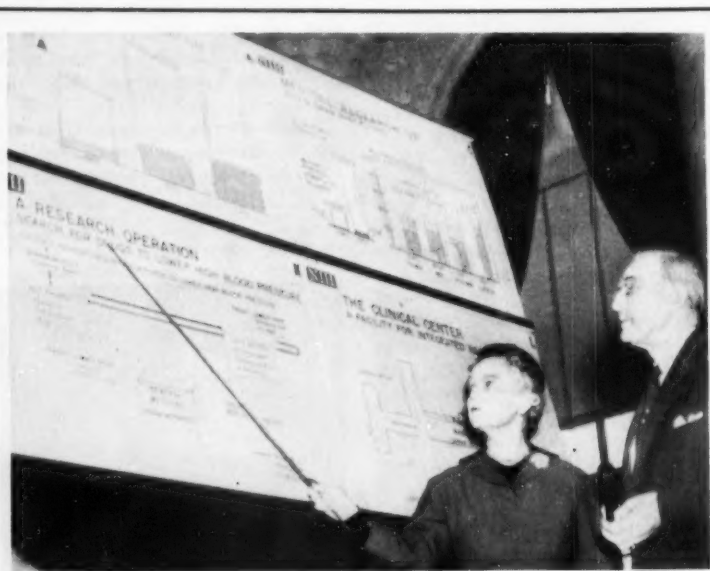
Asphalt: Witco Chemical Co. has increased its asphalt production at Perth

Amboy, N.J., by one-third. Cost: \$15,000.

Intermediates: Crosby Chemicals, Inc., Picayune, La., is launched on a \$2-million expansion program to provide facilities for the refining of waste products from local pulp and paper mills. First step: purchase of 45,418 acres of stumpage rights from Gaylord Container Corp. in Tammany Parish, La.

Chlorine: General Aniline & Film Corp. will build a \$3-million chlorine-caustic plant at Linden, N.J., designed to produce 26 tons/day of chlorine. A substantial portion of the output, company executives point out, will be ticketed for dye and chemical operations at Linden and Rensselaer, N.Y., although some chlor-alkali products will be available for sale in the northern New Jersey area.

Polyethylene: Koppers Co. Inc., Pittsburgh, will build its new polyethylene plant at Port Arthur, Tex. Construction's due to start within a few months, will be completed by mid-1955.



Antipollution Platform

INCREASING PRODUCTION of chemicals—including many new industrial products—is one factor making necessary a continuing research program at the Robert A. Taft Sanitary Engineering Center at Cincinnati. That's what Mrs. Oveta Culp Hobby, Secretary of

Health, Education & Welfare, is telling Senator Thyne, of the Appropriations subcommittee. Her department's worry: the nation's "fairly constant" water supply, which must meet the needs of a rising population, must be protected from pollution.

Sounds Enticing...

President Eisenhower has urged that "business income from foreign subsidiaries or from segregated foreign branches which operate and elect to be taxed as subsidiaries should be taxed at a rate 14 percentage points lower than the regular corporate rate." This he did to encourage private investment abroad.

But...

The omnibus tax revision bill (H.R.8300) restricts the type of business that can qualify for the 14-point reduction, specifically excludes wholesaling. It requires that gross income be "derived to the extent of at least 90% from the active conduct of a trade or business through a factory, mine, oil or gas well, public utility facility, retail establishment, or other like place of business situated within a foreign country." It explicitly excludes "the operation of an establishment engaged principally in the purchase or sale (other than at retail) of goods or merchandise."

More a Deterrent Than an Incentive?

Chemical management men contemplating increased foreign trade or larger investment abroad will get scant encouragement from the proposed tax on foreign income contained in the omnibus tax revision bill.

The pharmaceutical industry in particular is disconcerted. The bill, in its present form, falls far short of providing the stimulus to U.S. foreign trade and investment called for by President Eisenhower. Last week, its shortcomings were aired before the Senate Finance Committee in Washington.

Testifying as chairman of the National Foreign Trade Council's tax committee was George James, a director of Standard-Vacuum Oil Co., who urged that the bill be broadened to include many businesses now denied the 14-point reduction on foreign income. He was backed by Paul Seghers, New York tax attorney representing the Federal Tax Forum, and by Edward Carroll, economic research director of Sharp & Dohme, who appeared before the committee as spokesman for both his own company and eight other pharmaceutical manufacturers (Merck, Lilly, Upjohn, Abbott, Parke Davis, Searle, Johnson & Johnson and Pfizer).

The real way to eliminate complexities and discrimination, Seghers urged, would be to exempt completely from taxes all income from foreign sources, giving real and substantial encouragement to foreign trade and investment. This, in turn, would ultimately mean greater U.S. income and a higher tax revenue. But, even if Congress will not grant the complete exemption now, Seghers told the Senate Finance Committee, it can cer-

tainly improve the proposed bill, which in its present form discriminates against many U.S. firms doing business abroad.

Most serious discrimination: it needlessly restricts the types of business that can qualify for the 14-point tax reduction—specifically excludes distribution and wholesaling.

And it's this exclusion of wholesaling that alarms the pharmaceutical industry most—close to 25% of its total sales volume, according to Carroll, comes from foreign operations.

"The proposed tax revision bill would hit us," declares Carroll. "It's uneconomical for pharmaceutical companies to manufacture a complete line in each country—the demand just isn't

there. Wholesaling of a U.S. manufacturer's own product in foreign countries is ignored in the bill. We would like to see profits from any commodity sold for use outside the U.S. eligible for the preferential tax rate."

Mathieson's William Haynes, assistant controller and a member of the NFTC tax committee, likewise considers the wholesaling exclusion as the most serious defect.

But there are other shortcomings. For example: the bill requires ownership of "more than 50%" of the stock of a foreign corporation to qualify for the reduced tax; it denies the tax cut to income from royalties; it exposes to double taxation 15% of dividend from a Western Hemisphere Trade Corporation or foreign branch of a U.S. subsidiary; and it stipulates that no more than 25% of gross foreign income can be from manufacture abroad of goods intended for sale in the U.S.

Paul Smith, manager of Union Carbide's tax department, which is scrutinizing the bill to determine its possible impact on Carbide's foreign business, classifies the bill as "rather confusing" and "not carefully considered." As he puts it, "Everything leads up the street, and when you get there you're at a dead end."

Pollution Peril Ends

If a mass sigh of relief could be heard throughout the land, you would have heard one emanating from Horse Cave, Ky., last week: the approximately 1,600 townspeople there at last are rid of their unwanted arsenic trichloride (CW, Nov. 7, '53, p. 16).

No single customer could be found to take the 45,000 gallons of the deadly, highly reactive chemical off their town site, but a persistent selling campaign has succeeded in unloading all of the fuming liquid in small lots to numerous industrial consumers.

A now-defunct oil company had bought the acid from the Army's Chemical Corps after World War II for use in drilling wells. The arsenic trichloride stayed bottled up in metal tanks along a railroad siding for four years, but some of the liquid leaked out last summer, killing vegetation over a mile-wide area and giving the citizens the jitters about their water supply.

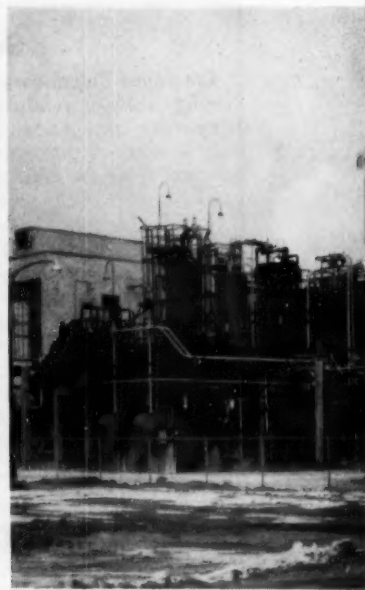
Since then, water samples have been tested twice every day, according to the Hart County Health Dept. Still playing safe, the town now plans to bulldoze and decontaminate the area around the tanks.



NFTC's JAMES: The proposed tax on foreign income is narrow and restrictive.



GENERAL TREND: From simple processing, meat packers are branching out.



SWIFT: At Hammond, Ind.,

Road to High Profits

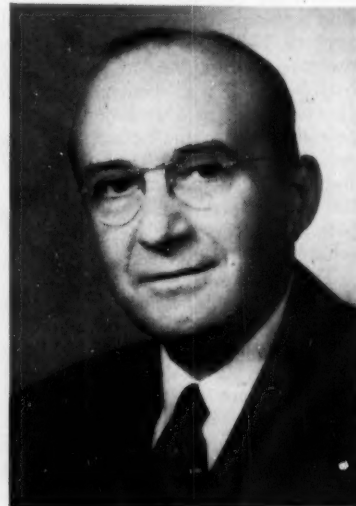
Leading meat packers agree: chemical and other by-product operations are their big money-makers today, loom as the major factor governing profits tomorrow.

Convinced that the quickest, most promising road back to higher profits is diversification into chemical fields, the conservative meat packing house business is today methodically investigating ways and means to further broaden inroads on by-product production. Reason for the trend is one of

basic economics. The meat packing industry hasn't been doing well of late; in 1952 it recorded its worst earnings since 1939. Plagued by strikes, floods, scarce and costly supplies, and with profit margins tightly squeezed by government price controls, major companies turned to

chemical production to bolster earnings. And the switch-over helped save the day.

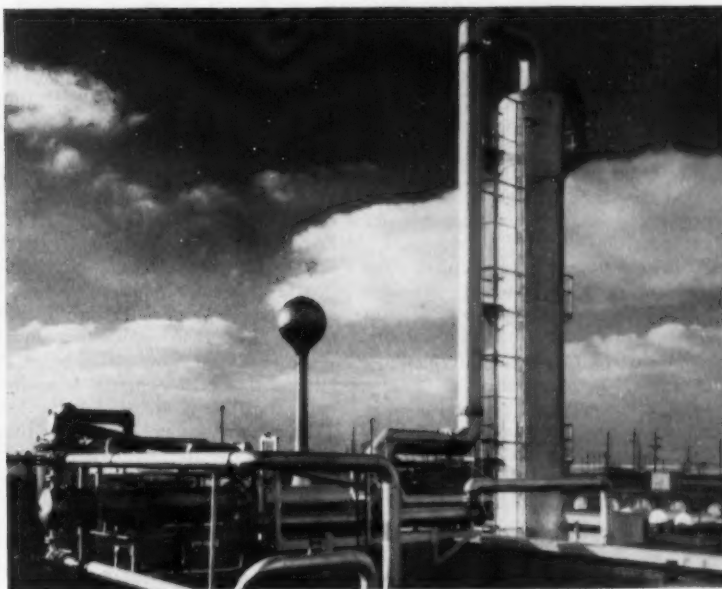
Cudahy Pres. L. F. Long frankly admits "it would be hard to over-emphasize the importance of by-products to the meat packers. It's safe to say that none of us would have shown an over-all profit in the past decade if it hadn't been for by-products. Cudahy openly states "it expects to increase both volume and types of



SETTING THE PACE: Wilson's Cooney (left), Swift's Moss (center), Cudahy's Long.



to production of insecticides, pesticides.

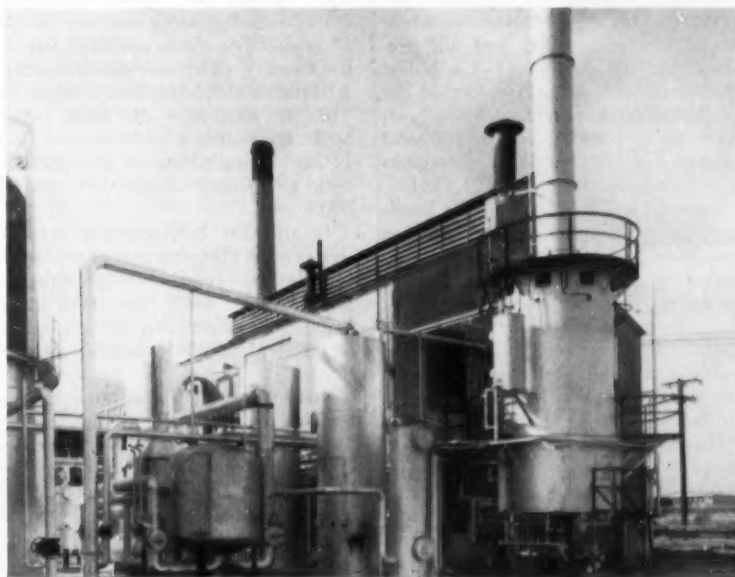


ARMOUR: At Kankakee, Ill., to recovery of solvents.

chemicals it produces very substantially over the next few years." Swift Vice-Pres. Eugene A. Moss echoes those sentiments: "Great progress has been made recently in the utilization of by-products; further progress is not only possible but also inevitable."

Armour's breakdown of earnings (and how they contributed to profits) tells the story at a glance. In 1950, food operations accounted for 88% of the sales, 41% of the profits; nonfood products turned in only 12% of sales, but 59% of profits. But by 1951 (when over-all sales had jumped to \$290 million) food operations accounted for 87% of sales, 22% of profits; nonfood products still added only 13% to sales but had rocketed to 78% of profits. Conclusion: chemical by-products for Armour carry a profit load out of all proportion to the comparative volume of sales they enjoy; the edge any meat packing company can gain on its competitors (since they all use almost identical techniques in packing operations) can be measured by its diversification into chemical and allied fields where the rate of return on investment is relatively high.

Roots Run Deep: Typical of the considered pace of the meat packers venturing into chemicals has been a rather slow process. Swelling urban populations brought about a concentrated demand for meat; packers were faced with the prospect of a mountainous pile of bones, scraps and waste that required disposal. At first,



CUDAHY: At Memphis, Tenn., to refining of margarine.

accepted procedure was to divide the waste into four major categories—meat, hides, clean fats and inedibles. Bones were processed for glue or gelatin; inedible scraps were accumulated in huge tanks and steamed. Grease that rose to the top was converted to soap; tankage that sank to the bottom was sold for animal feed or fertilizer.

Improved processing techniques today, however, are a far cry from those relatively simple and obvious procedures. Greater refinement is the

avowed aim of meat packing houses—and most refined products give little clue to their origin. Heading the list of major chemical products offered:

Adhesives

Bone and hide glues take the honor of being the first packer by-product (sales started back about 1870). But the field is by no means stagnant; new markets are continually opening up. Swift (probably the biggest of the Big

Four in adhesives) operates 18 plants throughout the country; Armour's new plant at St. Paul, Minn., turns out 2.5 million lbs./year of glue, is compounded by production at Omaha and Chicago into a 15 million lb./year business. Cudahy has plants at Omaha, Sioux City and Wichita (and won't reveal production figures); Wilson currently doesn't make glue, sells its raw materials to other producers.

Taking a glance at the future, company representatives foresee tonnage uses in oil-proofing, as a preventive in pollution problems of paper and titanium producers, and as an intermediary in chemical precipitations.

Rounding out their products line is uppermost in most expansion planning, too. Swift's adhesive division now offers a broad line of flexible, liquid glues, starch, dextrin and synthetic rubber products.

Soap, Glycerine

Because inedible fats amount to some 2-13% of the weight of an animal (depending upon the species), lard, tallow and grease is an important by-product. The soap industry as a whole takes 85% of the fats and oils produced in packing plants—1.4 billion lbs./year. The postwar boom of detergents was a staggering blow, however, poses a major problem for meat packers if tallow-based detergents don't catch on (*CW, Feb. 21, '53*).

Armour and Swift, seeing the handwriting on the wall, started research on other possible outlets some years ago, now admit to promising markets in the use of fractional derivatives "in nonsoap fields." Another outlet that may hold the fort ("at least for a while"): deodorant bar soaps—which for Armour at least (with Dial) has proved a smashing success.

Packers concede, however, that it looks as if there will be about 100 million lbs. of soap-based glycerine seeking a market soon; soapers and packers alike may soon say it isn't worthwhile to recover all of it, just as they did in the '30s when most of it went down the sewers.

Selling a line of soap products, of course, suggests an allied line of scouring cleansers; most of the packers have already added one or more to their line of products.

Pharmaceuticals

Pharmaceuticals (based on animal glands) are not a recent innovation for the big meat packing companies. Pepsin and pancreatin were sold as early as 1885; companies gradually began making thyroid tablets, liver ex-

tracts. Recent months, however, have put a new emphasis on the pharmaceutical angle of business; Armour just last week revealed a new construction program at its \$12-million Kankakee (Ill.) plant—significant testimony that company executives don't foresee the possibility of early synthesis of many of its 100 pharmaceutical products. Wilson Laboratories Div. (Chicago) is likewise putting added weight and capital behind pharmaceutical expansion.

To date Armour is the only member of the Big Four competing in the veterinary field, now offers some 200 ethical products. There's talk, however, that others are eyeing the field.

Important but not slated for much expansion in the immediate future: blood fractionating installations (again Armour's) at Kankakee and Fort Worth.

Fertilizer

Sensing the possibility of a profitable by-line (commercial fertilizer sales amounted to 23 million tons last year), meat packers have carved themselves a niche in fertilizers. Armour boasts 15 acidulating plants scattered around the country (with co-existent sulfuric acid plants at 12 locations), turns out 310,000 tons/year of 100% acid. Swift is running a close second, has 11 acidulating plants (6 acid plants), with a capacity of 210,000 tons of 100% acid.

In addition, both companies make wet process phosphoric acid (Armour, 110,000 tons/year of 50% phosphoric; Swift, 80,000 tons), use it to make triple superphosphate at a rate of 50,000 and 50,000 tons/year, respectively.

Swift was a pioneer of home garden fertilizers (with Vigoro in 1924), Armour was only slightly behind. Both have several dozen blending plants today (Armour, 30; Swift, 23), have firm intentions of retaining their place in the over-all fertilizer picture.

A natural next step to fertilizer production—insecticides and herbicides—has been considered by all four major packers but has been tried by only one—Swift.

Vegetable Oils

The switch to blended and hydrogenated shortenings has been the greatest single shot-in-the-arm for meat packers' profits in the past few years. Swift today operates 22 plants, turns out 150 million lbs. of vegetable oils each year; Armour (running behind but coming strong) is second—with about 50 million lbs. annually.

Even in the case of cottonseed oil (which lost ground in margarine and shortening fields) the packers have been admittedly lucky. Almost as soon as one market broke (such as the linoleum market), another rose to fill its place (as for example, use in synthetics). The shortage of cottonseed oil was the main reason behind Swift's construction of a plant at Memphis, Tenn., in 1952, stands behind Armour's current modernization of solvent extraction facilities.

All of the Big Four have some sort of stake in soybeans; Swift (again the most integrated of the packers) ranks among the 10 top processors in the U.S. Underscoring the belief that the packers look for great growth in the field: Swift has just completed re-vamping four of its six plants (with an estimated total production of 12,000 lbs. of oil daily)—from expellers to solvent extraction units.

Adding to the importance, packers accede to soybean development: research is currently under way, aimed at developing a casein substitute from soybean proteins, a fiber from the meal, other industrial uses.

Fatty Acids

With the recent improvement of chemical fractionating processes, which enable packers to gain more valuable end products, added emphasis has been placed on fatty acid production. Armour built a \$10-million plant at McCook, Ill., in 1947 with a capacity of 100 million lbs./year—some 10% of the nation's fatty acid production. Betting on the future of derivatives with specific end uses, Armour is spreading itself out (to the tune of over 200 products), hints that its biggest items will be in the line of the amines, nitriles—and with amides, ketones, quaternary ammonium salts. In terms of return, Armour's sales from fatty acids alone in 1951 stood over \$32 million.

Swift turns out stearic acid, lard oil, etc., at an annual rate of 20-25 million lbs.; Wilson produces some 20 million lbs./year of oleic acids, refined fatty acids.

Rounding out this diversification into chemicals, the top meat packers produce other specific items, too: Wilson turns out muriatic, nitric acid; Armour mines salt (in cooperation with Independent Salt Co.), is the fourth largest U.S. producer of abrasives.

It stacks up as a major invasion of the chemical field by the meat packers—one that's sure to continue in both depth and scope as the urge for higher profit margins intensifies.



WIDE WORLD

MAYOR POULSON: For cooperative companies, nothing less than a fair deal.

Rally for Redress

To chemical process companies that have been wanting to install equipment for air pollution control but haven't been able to work it into the budget because of its expense, the Senate Banking Committee is trying to offer a financial incentive.

And because smog is so strongly detested throughout the country, there is considerable popular support for the air pollution abatement amendment now being considered by that committee. This explains the parade of witnesses that appeared before the committee at last week's hearings; they constituted a rally for redress of what the witnesses considered a just grievance on the part of industry.

This viewpoint—that installation of pollution control equipment is a public service and not a profit-producing measure—was expounded emphatically by Mayor Norris Poulson of Los Angeles, whose city has about as much trouble with air pollution as any on the continent.

"It is certainly not justifiable," Poulson declared, "that companies be penalized through present income tax rules that require this cost to be shown as a capital investment to be depreciated over a long term of years. In fact, my contention is that it is not a special privilege they are asking, but a fair deal."

What the proposed legislation would do can be summed up thus:

- Allow 100% write-off in five years of costs of pollution abatement equipment.
- Provide for mortgage guarantees on such equipment.

- Allocate \$5 million for research work on pollution control.

Industry wasn't specifically invited to testify. Several trade associations considered appearing, but only the National Coal Assn. decided to submit a statement. The Manufacturing Chemists' Assn. hasn't taken a position yet. But there were witnesses aplenty from the ranks of public officials, ranging from local air pollution engineers (like Austin Daley of Providence, R.I.) to federal agency chiefs (like Louis McCabe, director of the U.S. Bureau of Mines).

Every witness during the three-day hearing favored the bill, and this unanimity bolstered the prospects for passage of the proposal this year. Admittedly, this is a long shot; previous attempts to give tax aid for pollution control always have failed. But a variety of reasons seems to give this kind of legislation a better chance this time around.

This bill went to the banking committee (which has jurisdiction over housing) because of the part that air pollution has in blighting residential areas. Prevent air pollution, goes the argument, and you help stop the creation of slums.

But with the advent of the scandals in the federal housing program, speculation has arisen that the fast write-off proposal might be re-introduced as a separate bill that might more logically go to the finance committee—which has had little enthusiasm for similar measures in the past. One possibility: Senators from states with air pollution worries might get together with those from states concerned about water pollution and push a bill that would grant tax relief on both counts.

LEGAL

Fight for a Name: Consolidated Chemical Industries of San Francisco is asking the U.S. District Court at Toledo, O., to order the recently organized Consolidated Industrial & Agricultural Chemicals, Inc., of Sandusky, O., to stop using the word "Consolidated" in its corporate name. In asking that the suit be dismissed, the Ohio firm claims it doesn't have a national market, that it has only eight customers for the sulfuric acid it manufactures, seven near Sandusky and one near Lansing, Mich.

Free From Vice: The chief policeman in this country's narcotics law enforcement program says that the U.S. pharmaceutical industry has a clean record in that field. Federal Narcotics Commissioner Harry Anslinger, speak-

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POLICEMAN ANSLINGER: For U.S. pharmaceutical firms, a bill of health.

ing at the recent convention of the American Pharmaceutical Manufacturers' Assn., pointed out that three Congressional committees have been investigating the narcotics problem in recent years, and none of the evidence implicated the United States pharmaceutical industry in any way. Unfortunately, he added, pharmaceutical concerns in Italy and some other countries "do not have a similarly fine record." Substantial quantities of heroin are still coming out of Communist China, he charged.

Explosion Test Case: A newly filed civil suit in New York Supreme Court at Buffalo may set the pattern for disposition of the more than 500 other claims pending as a result of the explosion in the Lucidol plant last September (CW, Oct. 3, p. 15). Attorneys for a Tonawanda resident whose home was damaged by the blast allege negligence and maintenance of a nuisance.

Right of Inspection: Of importance to all companies operating in Texas is the U.S. Supreme Court's recent decision that in effect upholds a Texas state law authorizing the state attorney general to examine records and letters of all corporations doing business in Texas. Humble Oil & Refining Co., the defendant in a state tax suit, was fighting that law but lost the verdict in state courts. Humble argued that the law is unconstitutional in that it permits unreasonable searches and seizures.

Export Fines: Chemical executives who remember the old U.S. Alkali

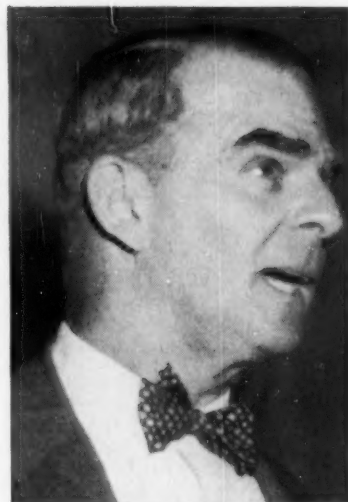
Export Assn. might raise an eyebrow at a recent decision by the Mississippi state supreme court upholding the power of the Wood Naval Stores Export Assn. to impose fines on member companies that export rosin, turpentine, pine oil and dipentine independently of the association. The association had levied a \$2,300 fine against Gulf Naval Stores Co., and that company's new owners filed suit to recover the fine plus interest and the company's \$5,000 membership deposit. A lower court found in favor of the company, but the supreme court reversed that ruling.

Paper Prices: Ten Canadian paper-making companies accused of conspiring to fix prices are using the statute of limitations in their defense, arguing that the charges were filed more than two years after the alleged price-fixing was said to have taken place. For the preliminary hearing in Vancouver, the crown prosecutor has submitted some 8,000 pages of typewritten documents as evidence that between 1934 and 1951, the companies fixed prices to be paid by sub-contractors and also controlled prices so that bids to hospitals and school boards from each company were "nearly identical."

LABOR

No Tenure for Reds: This year's May Day—traditional rallying day for Marxist labor groups—may bring balmy spring weather to most U.S. communities, but a chilly climate prevails in industry's and government's attitude toward Communist employees. General Counsel George Bott of the National Labor Relations Board has just ruled in a test case that a company can discharge an employee who has "Communist connections," and it appears that more and more industrial firms are going to be taking such action in coming months.

The man who was fired in this case had admitted that he had taken part in several programs that were sponsored by Communists, and he had been listed in a 1943 report by the House Committee on Un-American Activities as "identified with a considerable number of Communist organizations." Only two weeks previously, a large Pittsburgh manufacturing concern had dismissed two men described as "extremely undesirable employees whose left-wing activities have been widely known and sworn to under oath before appropriate government authorities." Both men,



SENATOR BUTLER: For dealing with left-wing unions, a toothier labor law.

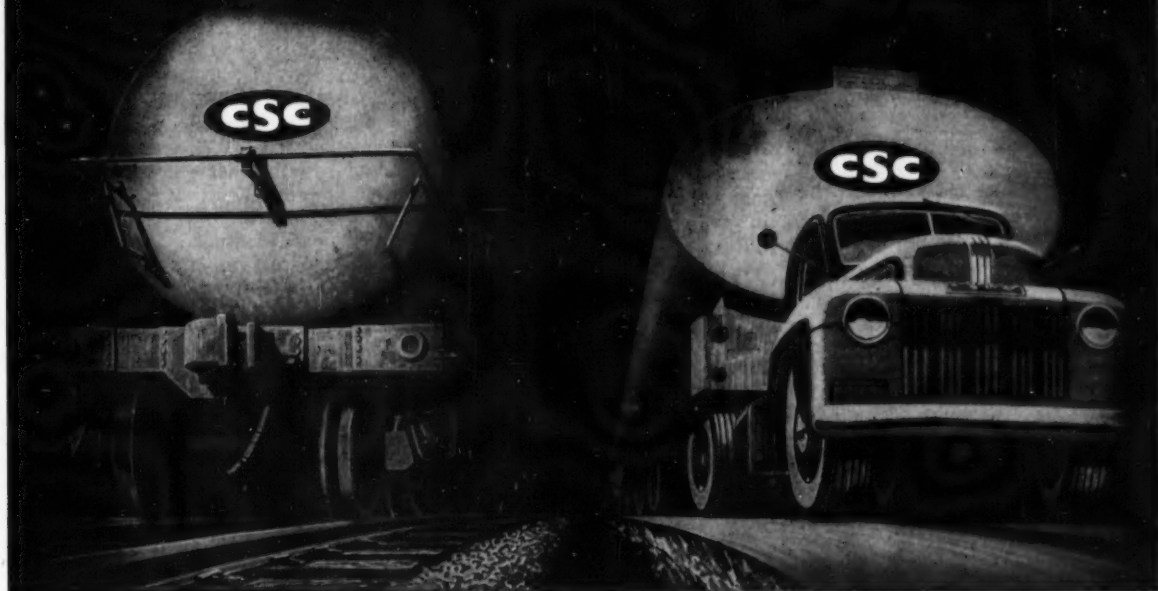
the company added, have refused to deny charges of Communist Party membership when questioned under oath.

Holding a key role in the effort to break Communist influence in labor unions and defense plants is Sen. John Butler (R., Md.), whose "task force" of the Senate's subcommittee on internal security is scheduled to report soon on legislation to put more teeth into the non-Communist affidavit clause of the Taft-Hartley law. Typical of the testimony heard by Butler's group when it took up the industrial subversion problem: recommendations by General Electric for legislation that would keep unions from operating under Communist officers and that would authorize government security agencies to bar "genuine subversives" from employment in defense plants. Although Butler insists that he's gunning for Communists only, some non-Communist union spokesmen have accused him of "anti-unionism."

Downbeat Bargaining: Reasoning that management must take the initiative in setting a tempo of reasonableness in contract negotiations in this era of peacetime competitive business conditions, the American Management Assn. is predicting that "downbeat bargaining" will be the theme of its special conference on collective bargaining June 7-8 in New York City. Chemical companies' industrial relations directors may be specially interested in the discussions on "How to Bargain for an Improved Contract," "How to Handle Crisis Bargaining," and "Merchandising Your Union Contract." National Sugar Re-

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fining's Vice-Pres. Thomas Heney will report on how his company bargained on the guaranteed annual wage.

Two-Tune Unions: One conspicuous point about labor negotiations this spring is that union spokesmen sing a different tune at the bargaining table than they do in their political polemics. In the latter setting, unionists demand action to stop "this creeping recession"; but in talking about a new contract, they argue that rising industrial profits justify new wage increases.

- The United Rubber Workers (CIO)—a union whose wage gains often help to set the pattern for parts of the chemical process industries—will open its 1954 contract campaign May 4 by asking for a "substantial" wage increase as negotiations with Goodyear begin. Demands for higher pay are based on the industry's record profits in 1953.

- At Binghamton, N.Y., the Ansco division of General Aniline & Film will increase by 2½% the pay rates for about 125 employees represented by Lodge 506, International Assn. of Machinists (AFL). Before the new contract was signed, hourly wage rates ranged from \$1.65 to \$2.35, according to an IAM estimate.

FOREIGN.

Sulfur/Mexico: Texas International Sulphur Co.'s new plant in Baja California, Mexico, is now producing sulfur at a rate of 700 tons/month. Company plans to stockpile the finished sulfur in San Diego, serve West Coast industry from there. The plant, located some 125 miles south

of the U.S. border, should be able to supply about 10% of California's industry demands.

Rayon Staple/India: The first plant built to manufacture rayon staple fiber in India is now in production at Nagda (near Gwalior). Cost: \$7 million. Machinery and equipment was supplied by Dobson & Barlow, Ltd., Lancashire, England. Aim of the owners is to produce 11 million lbs./year of staple fiber, cut importation of fiber and yarn—an estimated \$5.6-million saving in foreign exchange for India.

U.S.-German Cooperation: Monsanto Chemical Co. has joined forces with Farbenfabriken Bayer Aktiengesellschaft, Leverkusen in setting up a jointly owned company in the U.S. to produce isocyanate chemicals. Site for a plant has not yet been selected.

Paper/Argentina: Argentina's paper manufacturing industry will obtain a \$3-million loan in foreign exchange to import plant machinery to make cellulose, but U.S. bidders, set on obtaining a cut of the orders, may find themselves in stiff competition with German and Italian manufacturers.

Tariff Restrictions/Australia: New tariff duties on imports of titanium oxide and titanium white are now in effect in Australia. Reason: the Tariff Board having investigated the domestic commercial production of titanium oxide (a comparatively new industry in Australia) has decided the imposition of protective duties is necessary to "keep foreign producers [including

U.S. producers] from swamping the important industry before it's really in production."

Ammonia/Sweden: The Swedish Shale Oil Co. has signed an agreement with the Cooperative Assn. (and its subsidiary, the Swedish Saltpetre Works) to build a 22,000-ton ammonia plant in Kvarntorp, west-central Sweden. Under terms of the agreement (for 10 years), Shale Oil will deliver the plant's entire output to the Saltpetre Works for conversion into nitrogenous fertilizers, which in turn will be sold through the Co-operative Farmers Assn. According to Swedish Board of Trade sources, Sweden's need of nitrogenous fertilizers has been increasing steadily over the past several years, is met only 40% by domestic production today.

Cellophane/Australia: The chief project engineer of British Cellophane Ltd. is in Australia "investigating sites and facilities for the establishment of a £3-million cellulose film plant. Construction "should start within two years"; present Australian consumption exceeds 2,000 tons annually.

KEY CHANGES. . .

Raymond F. Evans, to chairman of the board, and **John A. Sargent**, to president, Diamond Alkali Co., Cleveland.

William S. Richardson, to president, The B. F. Goodrich Co., Akron, O.

S. Jackson Wommack, Jr., to manager, chemical process development, Olin Industries, Inc., East Alton, Ill.

H. W. Dahlberg, Jr., to assistant to vice-president, Phosphate Chemicals Div., International Minerals & Chemicals Corp., Chicago.

J. Gibson Pleasants, to vice-president, research and development, Procter & Gamble Co., Cincinnati.

Carl E. Barnes, to director, Central Research Dept., Minnesota Mining & Manufacturing Co., St. Paul.

A. J. Dirksen, to director of sales development, American Potash & Chemical Corp., New York.

Paul R. Schultz, to manager, chemical plants, **Larry L. Smith**, to superintendent, chemical plants, Stanolind Oil and Gas Co., Tulsa.

William J. Welch, to vice-president and member of the executive committee, National Lead Co., New York.



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Definition, Properties and Uses

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Modified Waring Blender
Gear Pump Dispersion Unit
Production Scale Dispersion Unit

SODIUM DISPERSION FORMULATIONS

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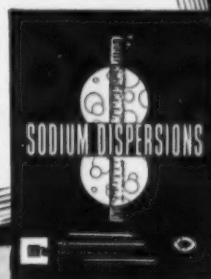
Detailed instructions, equipment illustrations

1. The Claisen Condensation
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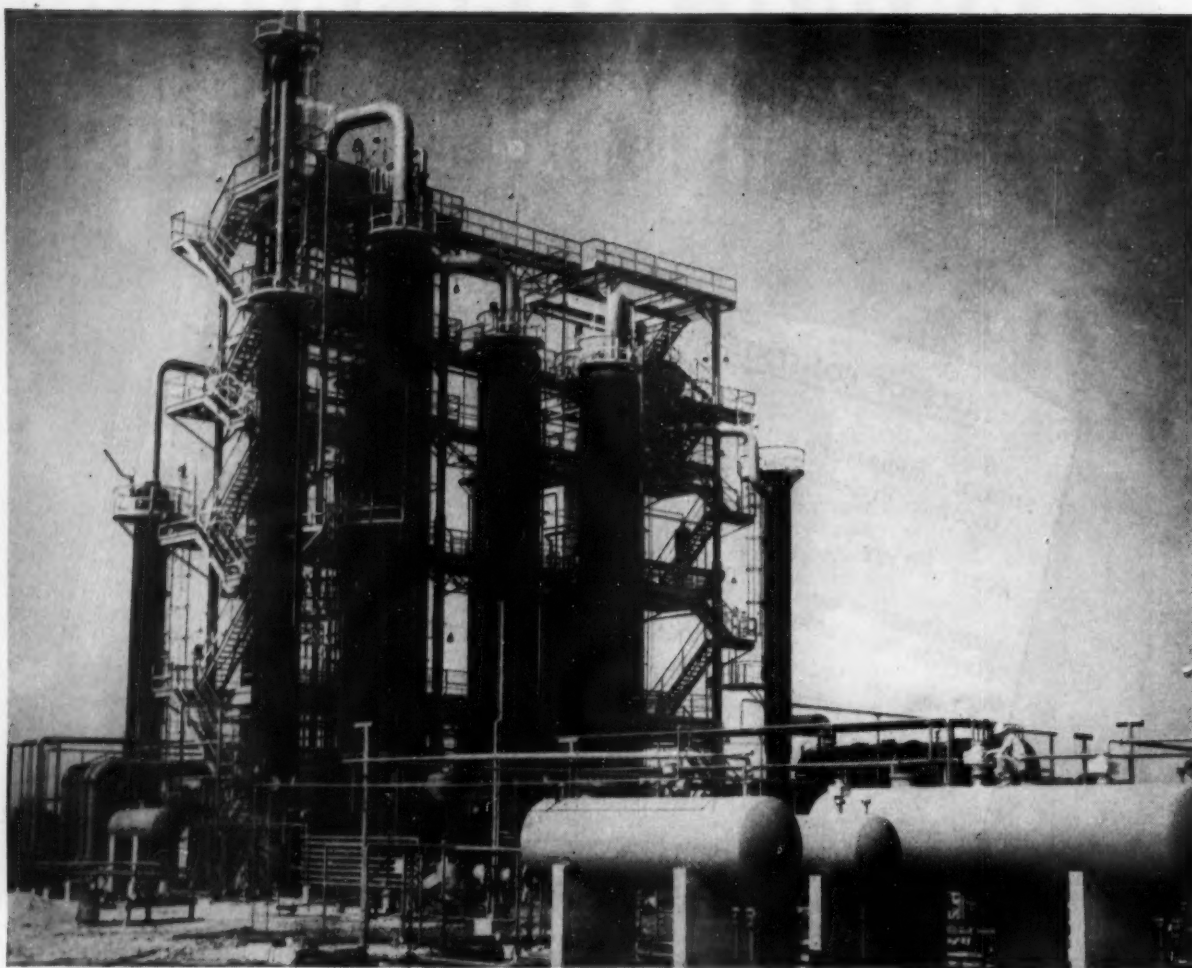
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PRODUCTION



NEW VS OLD: One of the trickiest steps in the process is the final finishing of styrene.

Superficially Similar, Fundamentally Different

They didn't laugh, exactly—but a lot of experts raised their brows and looked askance when Foster Grant sat down to play for styrene stakes. They believed it was impossible to get into the styrene business with an investment under \$10 million. But Foster Grant is proving them wrong this week as it brings in its new monomer plant at Baton Rouge (La.).

The plant is designed to produce 2 million lbs./month. As styrene units go, that's pretty small. But then the whole idea was to build a small, compact unit for a relatively small investment.

Integrating Backwards: The Foster Grant Co., Inc., is best known as a molder of thermoplastics. At its main plant, in Leominster, Mass., it has

been making polystyrene since 1950. Its decision to make the monomer as well was dictated largely by a desire to secure its own source of supply. But the Baton Rouge facilities were laid out with an eye toward expansion and eventually, the firm expects to sell some of the product.

The styrene produced won't, of course, make much of an impression on the total styrene output. What is significant, however, is the process that will be employed. For the plant is the first one in this country to use a process not licensed by Dow.

At first glance, that doesn't look like much of a trick: there are any number of starting materials and alternate routes to styrene. But the only one that's attractive commercially is

the alkylation of benzene with ethylene to ethylbenzene, dehydrogenation and finally purification of the styrene.

This is the basis for all present commercial plants. It's also the basis for Foster Grant's new one. At Baton Rouge, in fact, the first step is substantially the same as at other units. Benzene and ethylene, purchased from a nearby Esso refinery, react in the presence of aluminum chloride (catalyst) and ethyl chloride (which furnishes hydrogen chloride, the catalyst promoter and ethyl groups for the alkylation). The product is fractionated into a stream of ethylbenzene and one of unreacted benzene and higher alkylated products. The ethylbenzene stream is sent to



Foster Grant (left) uses hydroquinone, Dow at Velasco, Tex. (right) uses sulfur.

the dehydrogenator, the other is recycled to the reactor.

Ethylbenzene is mixed with steam,* heated and passed over a bed of iron oxide, the catalyst. The hydrogen that splits off is vented. A portion of the ethylbenzene is converted into the desired styrene. That, along with the unreacted material and small amounts of benzene and toluene, is sent to the final step for separation and purification.

The dehydrogenation step is one of Dow's important contributions to styrene technology. Just how Foster Grant accomplishes it without infringing on Dow's patents is something the

firm is understandably proud of, and something it's reluctant to disclose. It says merely that it employs a different design and different arrangement of equipment.

Purity Problems: The product from the dehydrogenator is made up of ethylbenzene, styrene and small amounts of benzene and toluene. (At one plant operated by Dow, the product runs about 35-40% styrene.)

Separating the ethylbenzene for recycle from the desired product, styrene, is one of the toughest problems encountered in the process. The boiling points of the two are only 9 C apart. And to make matters worse, the styrene polymerizes so readily that it's impossible to fractionate at atmospheric pressures.

That means that it must be done under vacuum. But even so, the pres-

sure drop per plate and the large number of plates required for the separation involve a temperature at the bottom of the column that favors polymerization.

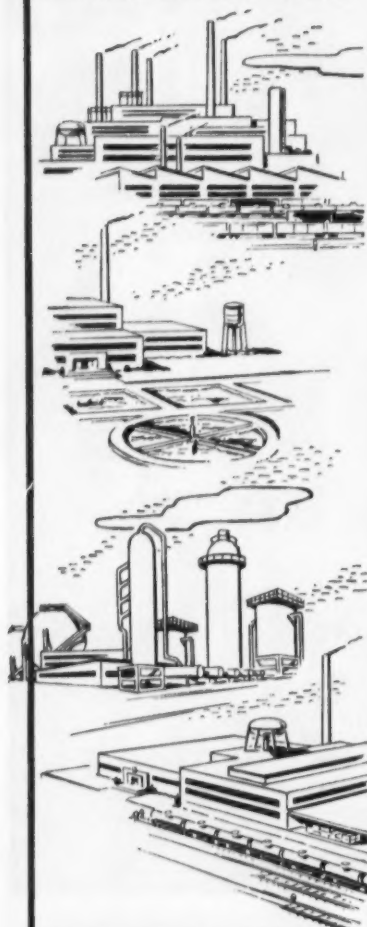
So an inhibitor must be used. Dow has patented the use of elemental sulfur in the column, *p*-tert-butyl catechol during shipment. Foster Grant is using hydroquinone as the inhibitor.

At present, Foster Grant's production isn't big enough to warrant separating the toluene from the benzene. If it expands production, however, it will probably find it economical to do so.

It's always difficult to make a valid comparison between two plants; and in this case, it's virtually impossible. Foster Grant, however, feels that the new plant will stack up well against

*To reduce the partial pressure of the products. Since a volume increase accompanies dehydrogenation, reduced pressure favors the reaction. The preferred method is to accomplish this by steam (2.6 lbs. of steam/lb. of ethylbenzene cuts the partial pressure of the reactant products to 0.1 atm.) instead of operating the high-temperature reaction under vacuum.

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PRODUCTION

any now operating. At a 12,000-ton/year rate, the \$4-million investment figures to \$333/annual ton. Even considering that the figure doesn't include facilities for making ethylene, it isn't high for a plant that size.

The firm isn't ready to make any claims on operating costs, but does feel they'll be in line with that of other styrene plants. (Reconstruction Finance Corp. reports costs per pound of specification-grade styrene—at the government's Dow-operated Los Angeles plant—of 8.76¢, 9.23¢, and 8.68¢, for the last three years, respectively. Dow has estimated conversion of both ethylene and benzene into styrene in a commercial plant at 86.5%. And Foster Grant feels that its yields will also be "in line."

Piping Coal

Pittsburgh Consolidation Coal Co.'s experimental coal-carrying pipeline is ready for commercialization. Last week, PCC Vice-Pres. G. A. Shoemaker disclosed that engineering cost studies on a proposed 110-mile line from Cadiz (O.) to Cleveland were in the final stages of preparation and that "there is every possibility that actual construction will start sometime this year."

In Cleveland, Elmer Lindseth, presi-

dent of Cleveland Electric Illuminating Co., revealed that his company is earmarking over \$2 million for a northern terminus of the line. Meanwhile, PCC is trying to line up other customers for the coal slurry, figures it has to keep the operation continuous to make it pay off. Since utilities are usually equipped to handle the fine-size coal that makes up the slurry, odds are they'll be the first to be approached by PCC. Next on the list are those firms not limited to the use of large-size chunks of coal. However, not to be discounted is PCC itself, whose proposed coal carbonization operations would adapt nicely to pipelined coal slurries.

The main advantage of coal-via-pipeline is the saving on transportation cost. Cleveland Electric's Raymond Snow estimates that the pipeline will slash the present railroad freight rates by \$1.25/ton. And, CE's Lindseth adds, lower-cost coal will prove a powerful lure in attracting new industries.

Behind the Line: Underpinning PCC's impending venture is knowledge and experience gained from continuous two-year operation of its 3-mile pilot line (CW, April 4, '53) near Cadiz. The pilot project, set up at a cost of \$550,000, consisted of a



Fiber at the Fair

THIS UNUSUAL PICTURE shows a worker laboring over the dished end of a pressure filter being made for Imperial Chemical Industries large-scale Terylene synthetic fiber plant. It's 11 ft. in diameter, made

of stainless steel. The filter is being made for ICI by the British Power Gas Corp. ICI is going to push industrial applications for the fiber at the British Industries Fair at London, which starts next week.

COMING TO YOU!

VERSATILE, HIGH PURITY

Ethylene Glycol

Diethylene Glycol

... Two more fine raw materials developed for you by Nitrogen Division. Of exceptional purity, these and other Glycols are now in production at our ultra-modern Orange, Texas, petrochemical plant. Available in bulk from Orange, Texas, in 4-, 6-, 8-, and 10,000-gallon tank cars or barges; L.C.L. shipments available in drums and tank trucks from Edgewater, N. J., New York City, Boston, Chicago, Los Angeles and other key industrial points.

Technical Help For You!

- Our Technical Service Staff is available to assist you in the use of Glycols.
- A valuable 33-page Technical Bulletin is available—an invaluable handbook to anyone working with Glycols.
- Free samples of Ethylene Oxide—Ethylene Glycol—Diethylene Glycol—Triethylene Glycol are also available. Just write to the Nitrogen Division for any or all of these services. No obligation, of course.

NITROGEN DIVISION

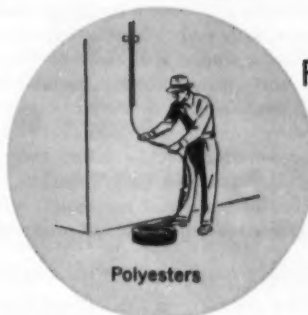
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U.F. Concentrate—85 • Nitrogen Solutions • Fertilizers & Feed Supplements



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Synthetic fibers



Humectants



Synthetic rubbers

For other resins, esters, solvents and plasticizers.

A Better America Through Chemical Progress • CHEMICAL PROGRESS WEEK • May 17 to 22, 1954

May 1, 1954 • Chemical Week

This is our world

SPECIALISTS IN CHELATION

For more than a quarter-century we have devoted all of our time, talent and energies to the study of chelate chemistry. From this has resulted the origin, development and production of the Versene Chelating Agents. We manufacture no other products and have no other interests. Chelation and chelation alone is our business. It is the only world we know.

CHELATION UNLIMITED

Our specialization in this particular kind of chemistry now makes it possible for you to use chelation to solve problems created by the presence of metal ions in solution. Proof of its effectiveness may be found in all fields of science. In Agriculture, for instance, it cures iron chlorosis (deficiency) to the point where growth is stimulated, yield increased and maturation speeded. In Medicine, it stabilizes whole blood, decontaminates both internally and externally by removal of radioactive deposits, cures acute lead and other heavy metal poisoning, purifies and stabilizes drugs and pharmaceuticals, solubilizes "insolubles" in animal, human and mechanical circulatory systems.

In Industry, it separates rare metals, controls polymerization of cold rubber and plastics, prevents or removes metallic stains and contamination in processing of textiles, papers, dyestuffs, foods, beverages, etc., increases detergency of soaps and synthetics, softens water completely and permanently without formation of precipitates.

INVITATION TO CHELATION

From these achievements you can see that the Versene Chelating Agents are powerful new "tools" for research and production. We invite you to use them to solve your own problem in chelation. We will gladly share our accumulated experience in this field. Send for samples and Technical Bulletin No. 2. Chemical Counsel on request.



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Oklahoma City, Tulsa, Kansas City, Mo.
BRAUN CORPORATION
Los Angeles, California

PRODUCTION

12-in. pipeline about 17,000 ft. long, coal crushing and slurry preparation equipment, and specially designed pumps. The line was completely instrumented, all important engineering data were documented.

Primarily, says Shoemaker, the new 110-mile line will simply be an extension in length of the pilot line. Minor variations in pipeline diameter and the like are currently being studied for their effect on operation costs and efficiencies, may find their way into the new project. But essentially the new undertaking will operate in the same way as the old:

Coal chunks will first be washed, then crushed to less than one-eighth of an inch in diameter. The fine-mesh coal will then be mixed with water to form a slurry, which is fed into the steel pipeline. Special pumps will finally move the slurry toward Cleveland under a force of about 1,000 lbs./sq. in. At the pipeline terminals, equipment will be set up for separating and drying the coal slurry, which will then be ready for use or storage.

EQUIPMENT

Acid Transport: Automotive Rubber Co., Inc. (Detroit) is now turning out small acid-carrying wagons in capacities to 400 gal. Tradenamed Acid Buggy, the unit is rubber-lined inside and out, has rubber-lined valves, and comes in a variety of shapes to adapt to plant layouts (squat-shaped where space is no problem; drawn out for areas laced with narrow work lanes).

Adjustable Ramp: Evening out height differentials between loading platforms and truck beds is the aim and accomplishment, claims manufacturer Rowe Methods, Inc. (Cleveland), of its new model 8 N.F. Adjust-A-Dock. The unit, a nonfloating, 10,000-lb.-capacity, adjustable hydraulic ramp, is built in standard 6-ft. width with a selection of lengths from 5 to 10 ft. Push-button controls quickly raise or lower ramp to match the bed level of incoming trucks. The ramp positions flush with platform floor when not in use.

Corrosive Exhaust: Duriron Co., Inc. (Dayton, O.) is introducing a new line of industrial exhaust fans, available with capacities to 8,000 cfm. The fans feature a forward-curved, multiblade rotor made of a high-nickel stainless steel, are availed to be highly resistant to most corrosive fumes and gases.

Process Control: Latest offering from General Electric Co.'s Meter and Instrument Dept. (Schenectady, N.Y.) is

PRODUCTION

a new line of process instruments including recording controllers, potentiometric and ac. bridge recorders. Designed for continuous control uninterrupted by periodic standardization, the instruments, says GE, incorporate new measurement circuitry and components such as a magnetic standard in the potentiometric system and a bridge-balancing unit in the ac. bridge setup. The instruments are available with either electric or pneumatic control, feature a centerless pointer that's claimed to simplify chart changing and reading by leaving more of the chart exposed to view.

In Brief: Background on Blaw-Knox Co. (Pittsburgh) is the topic of bulletin 2439 from B-K's Process Equipment Dept. The bulletin also describes production of various process equipment.

• In a booklet just published by the National Assn. of Electric Companies (Washington, D.C.), A. J. G. Priest makes a pitch for private development of electric power. Priest, former chairman of the Section of Public Utility Law of the American Bar Assn., feels the government discriminates against privately owned utilities by subsidizing public power projects.

• Alcoa Research and Progress in Electrical Conductors is the title of a booklet just published by Aluminum Co. of America (Pittsburgh). Alcoa's Massena (N.Y.) Electrical Conductor Laboratory is detailed in pictures, while the text traces history of the firm's conductor research.

• Graver Water Conditioning Co., division of Graver Tank & Mfg. Co., Inc. (New York), writes about the use of its diatomite filters in industrial filtration. Specifically, photographs and schematic diagrams show typical arrangements of the diatomaceous earth filters; the text explains how the liquid is passed through the filtering medium.

• **Gas Alarm:** Johnson-Williams, Ltd. (Palo Alto, Calif.) is offering its new self-contained, continuous-operating combustible gas alarm to industry as explosion protection from such single-point hazards as process or hydrogen-brazing areas, fuel piping systems, and drying ovens. The alarm continuously draws vapor samples from the point of potential hazard, continuously shows explosibility on an open-face indicating meter. When combustibles range up to 0.1-1.0 of lower preset explosive limit, an internal relay closes the circuit, actuates sight or sound signals.

Bemis B-FLEX

A Better Multiwall Valve Bag FOR LESS!

Look at these B-FLEX benefits:

LOWER BAG COSTS... Save up to \$2.50 per thousand.

FASTER PACKING...LOWER PRODUCTION COSTS.

UNIFORM WEIGHTS... stop over-packing.

MINIMUM SIFTING.

Ask your Bemis Man for the complete B-FLEX story.

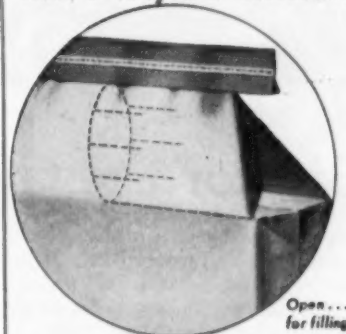
With Bemis B-FLEX Bags, you also get the same bonus you get with all Bemis Multiwalls—**BEMIS MULTI-COLOR PRINTING**... your brand at its finest on multiwall bags.

Bemis



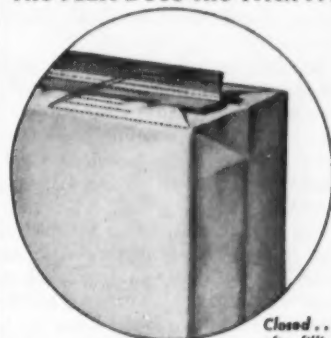
General Offices—St. Louis 2, Mo.
Sales Offices in Principal Cities

Here's Why It's Better...

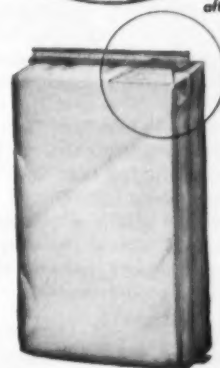


Open...
for filling

The FLEX Does the Trick...



Closed...
after filling





OLD STORY: Farmers have heard about calcium cyanamide for years . . .

Bid for the Garden Trade

The average home gardener, browsing through his favorite flower magazine or seed catalog, or perhaps scouting for what's new in his neighborhood hardware store, will be intrigued by the claims of the latest chemical weapon in the armamentarium for home lawn and garden owners.

But he's unlikely to tie in the take-home bags of cyanamide now beginning to appear on the local hardware floor with the sprouting production units now rising at American Cyanamid's new plant at Fortier, La., near New Orleans.*

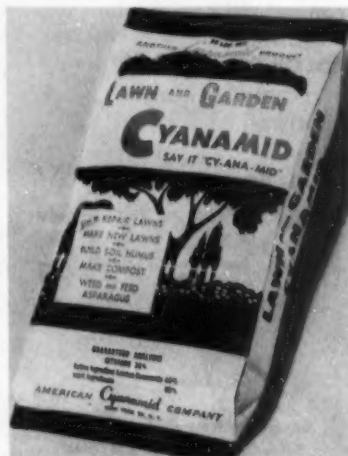
For it is only this year, for the first time in its 47 years of producing the material, that Cyanamid, sole North American maker, has ventured to offer calcium cyanamide to the home trade. Says a company spokesman: "Because agricultural nitrogen has been in short supply for many years, until now all available calcium cyanamide has had to be placed at the disposal of commercial agriculture."

No Backdown: Cyanamid has, of course, long eyed the lush home-gardener market. Estimated at upwards of \$1½ billion, purchases by enthusiasts of what is probably America's No. 1 hobby indicate that it's expanding indefinitely.

* The Fortier units will not be turning out calcium cyanamide; but output of this item at American Cyanamid's Niagara Falls, Ontario, plant can now be diverted into broader consumer channels.

But, as merchandisers are well aware, consumer markets are one-way streets: once a company has created a demand for a product, there's no turning back. The material must be available. For this reason, Cyanamid has been cautious about introducing its combination weed killer-fertilizer to the home trade.

Pedestrian Progress: In the same way that it has postponed its entry into the consumer field, Cyanamid is promoting with measured tread. Last year, a modest test-marketing trial was conducted in Hartford, Conn.



NEW ENDING: Home gardeners are about to learn the news.

Encouraged by the test results, the company is setting up its plans in this fashion:

- Proceed, through hardware and garden supply wholesalers, to offer the material under the American Cyanamid label.
- Advertise in consumer gardening magazines.
- Encourage cooperative promotions, including newspaper, radio and television routes, with local dealers.
- Supply samples and discussion material for garden club demonstrations.

Timing its entry into the consumer field for the spring season, Cyanamid is taking advantage of the average lawn grower's tendency to plant now rather than in early fall, commonly considered the most favorable season.

One of the top claims for the product is beamed at those who would start their lawns from scratch. Says Cyanamid: its material kills weeds in the seed stage, then breaks down into nitrogen-lime fertilizer components.

It would appear that, if anything, Cyanamid's bid for consumer sales is proceeding with a minimum of fanfare. However, there is an air of quiet confidence pervading the promotion.

Not that the company is inclined to underestimate the potentialities of its product. Rather, having sold millions of tons in the past 47 years to the nation's farmers, it is inclined to view its entry into the home lawn and garden field as a sure, logical step.

Distributor Appointments:

• Reynolds Aluminum has named Industrial Metals Inc., St. Louis, as its new distributor in the southern Illinois-Missouri area.

• I. P. Thomas & Son, Camden, N.J., has given exclusive distribution rights for its triple superphosphate to Phillips Brothers Chemicals, Inc. Heading up the sales section is Kenneth D. Morrison, general manager of Phillips' agricultural chemical division.

• Arapahoe Chemicals, Inc., has appointed Tracerlab, Inc. (Boston, and Richmond, Calif.) sole distributor of its compounds for liquid scintillation counting.

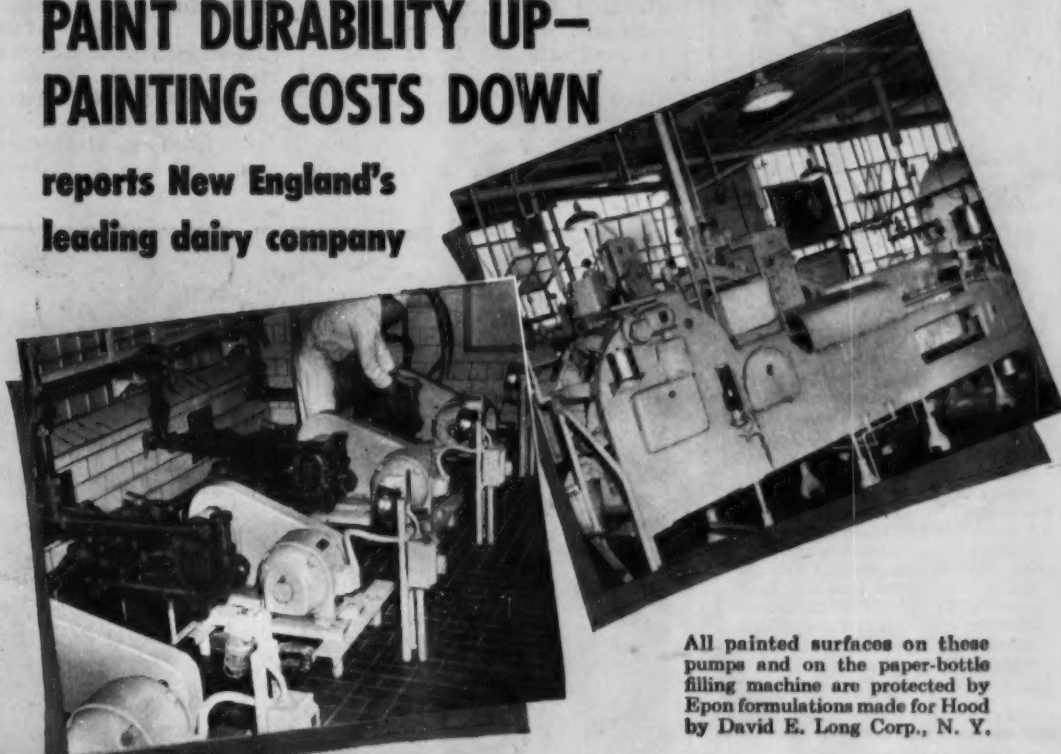
New Literature: Now available:

• "Marketing Channels" is the title of a new book sponsored by the American Marketing Assn. and edited by Richard M. Clewitt. Essays by 22 experts are designed to aid the choice of the most productive market-

EPON RESIN does it!

PAINT DURABILITY UP— PAINTING COSTS DOWN

reports New England's
leading dairy company



All painted surfaces on these pumps and on the paper-bottle filling machine are protected by Epon formulations made for Hood by David E. Long Corp., N. Y.

HERE'S HOW...

PAINTING is an important part of maintenance in a dairy plant—both for appearance and cleanliness. The paint must meet a wide range of conditions—steamy heat of processing rooms, near-freezing of circulation piping, scouring action of alkalies and detergents.

After conducting patch tests, H. P. Hood & Sons applied Epon resin-based paints experimentally to walls and ceilings of their laboratories, offices, bottling and processing rooms, and on piping and machinery.

The Hood results to date indicate Epon-based paints have these advantages: They can be applied directly to plaster, brick and cement

with no special surface preparation. Two coats are adequate to cover any surface. Intervals between paintings are notably lengthened, which means substantial savings in labor and paint.

Paint users are rapidly recognizing the basic advantages of Epon resin-based formulations—excellent adhesion, resistance to abrasion and impact, ability to stand up under heat, humidity, and corrosive atmospheres. Your Shell Chemical representative will explain how Epon resins can improve your own paint and enamel formulations. Literature available for your study is SC:52-31 "Epon Resins for Surface Coatings." Just write or telephone.



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The BETTER the ODOR
the BIGGER the SALES!



TAKES THE O. O.* OUT OF FERTILIZERS. . .

*Offensive odor—plague of the organic fertilizers! The notion that nothing could be done about this unhappy condition has been largely dispelled by recent experiments with dried animal fertilizers. Through the simple expedient of spraying with an inexpensive solution (0.1%) of NEUTROLEUM[†], this objectionable characteristic has been greatly modified . . . another example of NEUTROLEUM'S amazing versatility. Originally perfected to neutralize the odor of petroleum distillates, it is now being used for like purpose in hundreds of unrelated products. And powerful NEUTROLEUM is but one of many odor-masking specialties developed for industry by our laboratories.

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manufacture of products checked below.
What do you recommend?

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Brothers, Inc.

Established
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DISTRIBUTION

ing outlets. Material on changing distribution trends, the effect of federal laws, and examples of the marketing policies of specific companies are also included. Richard D. Irwin, Inc., Homewood, Ill., 518 pp., \$6.50.

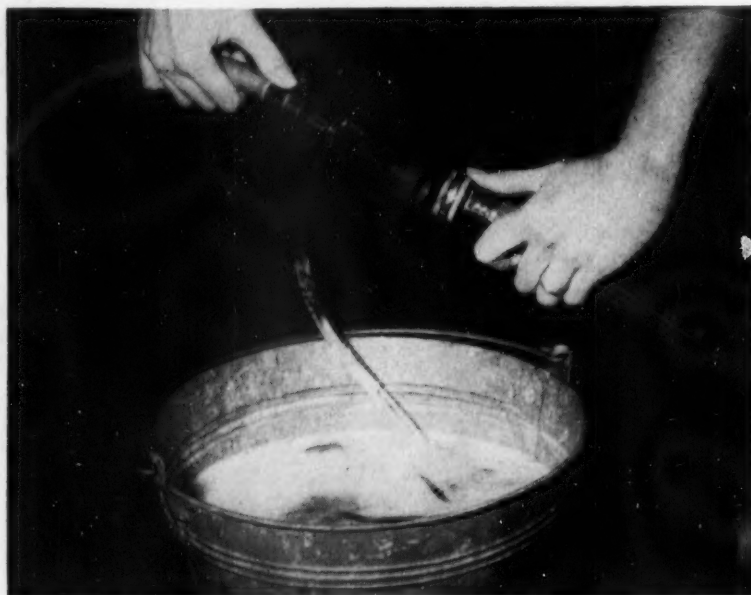
• "Bibliography of Materials Handling" (PB-111306) contains 270 references to materials handling, machinery, packaging, layout, management, and production line procedures. Office of Technical Services, U.S. Dept. of Commerce, Washington 25, D.C., 17 pp., 50¢.

• "Making Your Sales Figures

Talk" (Small Business Management Series, No. 8) outlines feasible methods of market analysis and provides market study information sources. It's intended especially for small and moderate-size firms. Government Printing Office, Washington 25, D.C., 36 pp., 20¢.

• "Getting Your Product on a [Government] Qualified Products List," Management Aid No. 42, outlines procedures. Small Business Adm., Washington 25, D.C.

• "How to Build Your Sales Volume." Lists of questions for studying



"FOLIATOR": Made of styrene, polyvinyl chloride and cooperation, it solves . . .

Aspiration By Plastics

When Monsanto Chemical was readying to market Folium, its liquid fertilizer, the merchandising division ran into a snag. Use of the water-soluble fertilizer for feeding lawns and gardens called for introducing a solution of the material into the garden hose. On the surface, solution of the problem appeared elementary: just introduce an aspirator into the line.

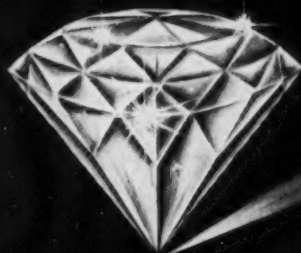
However, much to their chagrin, Monsanto's staff found that the only aspirator in a popular price class retailed between \$2.75 and \$2.95—far too expensive to consider offering to consumers as a "package deal" to promote the fertilizer. And in addition to the cost disadvantage, it was made of metal, attached to a section of rubber hose, and it distributed the fertilizer too slowly.

At this point, Monsanto's Merchan-

dising Division crossed company lines, called on its Plastics Division to develop the proper device. Ottway Rash, development director of the Merchandising Division, drew up the original sketches and passed a working model along to Plastics' Jack Kent and Jack Porte.

What the Plastics Division produced is possibly the first injection molded plastic aspirator ever. Cost? Monsanto is not divulging, but is offering the aspirator to the Folium "deal" purchaser at an average price of 55¢ (depending upon size of fertilizer purchase).

The company, naturally happy over solving the merchandising snag, is especially proud over having evolved the "Foliator" (its aspirator) as an "intracompany marketing device".



Stability

FROM HEAT AND LIGHT DETERIORATION

Admex 710

ADM'S NEW EPOXY
VINYL PLASTICIZER

Here's a plasticizer with built-in stabilizing properties!

Specify Admex 710 in your vinyl compounds to get stabilizing properties not obtainable in any other type of plasticizer. Admex 710 prevents discoloration caused by heat in processing. It insures color uniformity of consumer products when exposed to the abuse of constant sunlight and high temperatures.

And, stability is only part of the story: Admex 710 is extremely resistant to extraction and migration. You will find that calendered film and sheet, coated fabrics, extrusions, moldings, and foam compounds containing

Admex 710 show outstanding compatibility, permanence, and continued flexibility. We invite you to evaluate this new high compatibility epoxy type plasticizer today. *No other plasticizer does so many things so well!*

Send today for technical bulletin and evaluation samples. See for yourself how Admex 710 can help improve your products, increase customer satisfaction, and—at the same time—lower your production and raw materials costs!

Take the ADM SCIENTIFIC SHORTCUT

with **Admex 710**

Other ADM Products:

Linseed Oil, Soybean Oil, Marine Oil, Paint Vehicles,
Fatty Acids, Fatty Alcohols, Hydrogenated
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- ☐ Please send me Admex 710 Technical Bulletin
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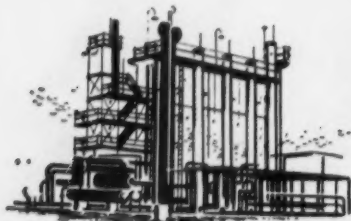
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PROBLEM

To produce hydrogen essentially free of carbon monoxide which has a deleterious effect on product quality and plant capacity for edible oil producers.



SOLUTION

GIRDLER developed a highly active durable catalyst, G-12, for removal of carbon monoxide from the hydrogen. Cost of hydrogen production was reduced and carbon monoxide content was cut 95% resulting in:

**Hydrogen with
less than 5ppm of
carbon monoxide**



Take advantage of the experience of Girdler in solving *your* catalyst problems!

FOR
Catalysts

WRITE...



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DISTRIBUTION



Bigger Dry Iceberg on Wheels

MATHIESON Chemical's carbon dioxide manager, George Armstrong (left)—together with asst. traffic manager Jack Collyer (center) and J. J. Quinn of the Fruit Growers Express Co.—inspects the first of his company's new fleet of dry ice cars. The 54-ton car, built by Fruit Growers at Alex-

andria, Va., has 20% greater capacity than the standard car, incorporates several new design features.

Assignment: transport dry ice, packaged for delivery to consumers, from Mathieson's Saltville, Va., plant to 15 company warehouses throughout the country.

sales programs are provided. Topics included: the market and competitors, the sales structure, and the effectiveness of the sales organization. Management Aid No. 44. Small Business Administration, Washington 25, D.C.

- "Judging Your Purchasing Efficiency," outlining the scope and place of purchasing in a business operation. Self-appraisal questions and charts are part of the booklet. Management Aid No. 45. Small Business Administration, Washington 25, D.C.

- "Appraisal of Census Programs." The Intensive Review Committee of the U.S. Dept. of Commerce has published an evaluation of Census Bureau activities in fields ranging from population and manufacturing to mineral industries and foreign trade. Particular attention is given to marketing uses of census data. Govt. Printing Office, Washington 25, D.C., 45¢.

- American Marketing Assn. has recently made available its "Appraisal Of Census Programs for Marketing

Uses." Obtained through a poll of members, the data cover the purposes and procedures of the survey, marketing applications of the census, data meaning, and projected census improvements. American Marketing Assn., 1525 East 53rd St., Chicago 15, Ill., 50¢.

- **Highball for Central:** Chemical shipments for 1953 through Kentucky on the Illinois Central were 60% over the 1952 figure of 21,000 cars. Although the Korean truce reduced munitions movement through the state, increased chemical production more than offset the drop. According to railroad officials, the upsurge stems from continued chemical investment in the Calvert City, Ky., area. Latest firm planning a factory for Calvert City is General Aniline and Film (CW Newsletter, April 17).

- **Expansions:** U.S. Steel Products, a division of U.S. Steel, has begun construction of a container factory on a



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the company responsible for

KRAFT-lok®

... the first major sleeve-valve improvement
in a decade, that provides tighter valve closure
for granular or pulverized materials ...

is also a dependable source for standard types of
heavy-duty multiwall shipping sacks
2 to 6 ply—1 to 4 color printing

there is no substitute for kraft!

Our 2 completely integrated
plants enable you to
eliminate large bag
inventories and operate on
shorter supply lines.

Because we are one of the
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producers in the United States,
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ideally situated to deliver any
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1 Responsibility

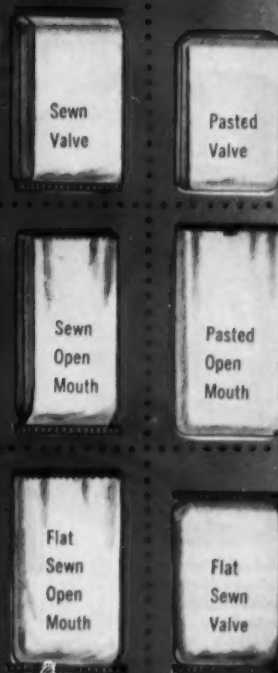
2 Integrated Plants

3 Generations of Bag Experience

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*Hydrocarbon
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REFINING COMPANY**

Butler, Pennsylvania

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Branches: Cleveland, Ohio and Edgewater, N.J.

DISTRIBUTION

27-acre lot north of Camden, N.J. Scheduled for completion in early 1955, the plant will occupy 168,000 sq. ft. of floor space and have an annual capacity of 2.4 million drums and 3.2 million pails. Output is destined mainly for the chemical and petroleum industries. Containers will vary in size from 3½ to 7 gal. pails up to 100-lb. grease drums and 55-gal. oil barrels.

• Union Carbide and Carbon Corp. has opened a new, \$500,000 office building at Birmingham, Ala. Housed in the structure are four

local offices of Carbide divisions: Electro Metallurgical Co.; Linde Air Products Co.; Haynes Stellite Co., and National Carbon Co.

• Puritan Chemical Co., Atlanta, Ga., has expanded its warehouse and office facilities in St. Louis. Necessitated by its increased Midwestern activities, the addition gives Puritan over 10,000 sq. ft. of floor space.

State Truck Taxes:

• Tennessee is now charging out-of-state truckers its state gasoline tax. Proportional to the mileage covered



EYE TO EYE: *Mail merchants, vinyl makers unite on quality standard as . . .

Catalogers Aid Film Crusade

Vinyl film manufacturers have received a big boost in their campaign to encourage the "Vinyl Film Standard of Quality." Swinging in behind the standards at a recent luncheon meeting in Chicago were several of the nation's major mail-order houses: Sears, Roebuck & Co.; Montgomery Ward; Spiegel; Alden's; John Plain. Sponsored by the Society of the Plastics Industry, the code establishes strict quality specifications for vinyl film materials. Besides improving over-all quality, the standard is expected to discourage "traders" from vending inferior "ersatz" vinyl film.

At the Chicago meeting, representatives of the catalog merchants were told that industrywide support of the standards would stimulate consumer acceptance of products complying

with the standard and that this would lead to increased sales and profits.

Currently the vinyl makers are educating the consumer in the significance of the standard's "Seal of Quality." In building customer confidence, said the speakers, industry must assure customer satisfaction in the performance of vinyl film.

Heavy emphasis was placed on the key position of the retailer in promotion plans. Retailer insistence on "standard" products would, it was claimed, not only encourage spread of the standard, but would protect the dealer as well as the consumer.

The quality standards have been approved by the U.S. Department of Commerce, are known officially as C.S. 192-53. Behind the quick endorsement of the standard by the mail-order firm lies this fact: the standard establishes for the entire industry specifications to which the catalog men have adhered all along.

* L. to r., Society of the Plastics Industry's William Cruse; Sears, Roebuck's H. L. Mumma, Jr.; and Elm Coated Fabrics' Bernard Mittman.

**Sodium
Tripolyphosphate**

**Tetrasodium
Pyrophosphate**

**SODIUM
PHOSPHATES**

**Trisodium
Phosphate**

Crystalline
•
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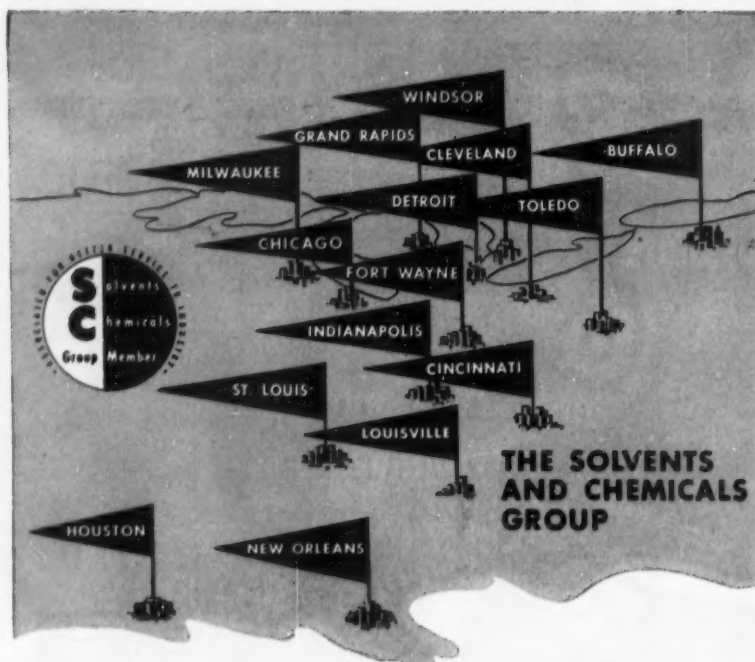
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DISTRIBUTION

on Tennessee territory, the levy applies to all trucks over 12 tons. Authority for the ruling comes from an unused provision of a 15-year-old law allowing tax collection on all incoming gasoline in excess of 18 gal.

• In Virginia, a similar tax has been extended to companies doing their own trucking. Heretofore, only out-of-state common carriers paid the tariff. Virginia expects some \$2 million more revenue from the extension. The Virginia statute requires haulers to purchase in Virginia as much gas as they burn on its highways.

• **Weight-distance taxes:** Never-say-die supporters are trying their luck again in the New Jersey legislature. According to its proponents, collection cost would be 5%, and over \$14 million annually would flow into state coffers if it were passed. Trenton lawmakers have, however, refused enactment of previous proposals.

• **Not So Much:** Ohio collections on its axle-distance tariff are running below State Tax Commission estimates. An annual revenue of \$20 million had been anticipated. Re-evaluation, based on existing returns, indicates an income of 11.8 million, however.

No ASMPA Move

Plans to move the Armed Services Medical Procurement Agency from its present location at Sands St., Brooklyn, have been abandoned.

Fred Stock, president of the New York Board of Trade, and vice-president of Mathieson Chemical Corp., last week received a reply to his earlier petition to Secretary of Defense Charles Wilson, in which he had urged Wilson to block a move to shift ASMPA from Brooklyn to Battle Creek, Mich.

In a letter of reply to Stock, Rear Admiral L. H. Thomas, staff director, Purchasing and Contracting Policies Division, Office of the Asst. Secy. of Defense, agreed that the best interests of the government and the taxpayers would be served by keeping the agency at its present location.

In his original petition to Wilson, Stock had cited these reasons for abandoning the move from Brooklyn:

• "New York has the largest concentration of selling offices for major drug and chemical firms anywhere in the United States.

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OIL FIELD PIPING: High hope for a resin match.

Mated for the Better

Mobilized by surging ethoxylene (epoxy) resin production, a number of chemical companies are investigating products to increase the versatility of these polymers. In the van of researching firms is Thiokol Corp. (Trenton, N.J.), currently launching a new line of liquid polysulfide polymers that enhance the flexibility and impact strength of epoxies, promise to broaden their range of usefulness. Having quietly worked out formulations with major epoxy producers (Shell, Ciba, Bakelite, Borden) and consumers, Thiokol is now confidently bringing its new offerings to market.

Strong points of the epoxies are by now well known, include good chemical resistance, high strength, strong adhesion and good dielectric properties. But they're somewhat deficient in resistance to impact and to deformation under load at elevated temperatures. In addition, epoxies tend to shrink in molding, are prone to retain stress patterns.

These weaknesses can be improved—avers Thiokol—by compounding the epoxy with its low-molecular-weight, saturated, sulfur-containing liquid

resins. Newly available for this purpose are six types designated Thiokol liquid polymers LP-2, 32, 3, 33, 8, 38; they differ in viscosity and degree of cross-linking.

But Thiokols don't cure all epoxy woes. They increase the thermoplastic properties that the latter exhibit at elevated temperatures. For this reason, high proportions of Thiokols are to be avoided in products that must withstand 300 F.

Some of Each: How the sulfide polymer improves its epoxy host is not fully clear. One theory holds that copolymerization takes place between the two, yielding a structure that combines some of the properties of each.

In formulating, the Thiokol liquid polymer usually is mixed with an amine catalyst before the epoxy resin is added. Choice of catalysts includes: benzyldimethylamine, piperidine, diethylamine, dimethylaminopropionitrile, pyridine, triethylenetetramine, tris (dimethylaminomethyl) phenol (Rohm & Haas' DMP-30). Type and concentration of amine influences the speed and degree of conversion.

Newest development in this field is

Shell's "Curing Agent CL." Chemically, *m*-phenylenediamine, the compound is made by Du Pont and National Aniline Div. (Allied Chemical & Dye Corp.), reportedly yields better heat distortion characteristics than do other catalysts.

Right now, the hope is that Thiokol-modified epoxies will find application in lightweight, corrosion-resistant, high-strength pipe, e.g., for sour crude oil. Added possibilities are in adhesives like Chrysler Corp.'s Cycleweld; automobile tooling mock-ups and fixtures; and uses in laminates, castings, and coatings.

Thiokol's probe of epoxy combinations is guided by research manager Edward Fettes and vice president Joseph Jorczak. They point to a growing trend toward the use of liquid resins, are optimistic about their brain-children's prospects. To lend weight to their high hopes, they reveal that about 6% of their total production of 175,000 lbs./month of Thiokol polymers (priced between 96¢ and \$1.25/lb.) is earmarked for epoxy formulations.

But all isn't smooth sailing. Since epoxies normally cost about \$1/lb., there's some resistance to adding an ingredient which doesn't do anything for the final tab. In the wind: a cost-cutting synthesis of Thiokol polymers* that could alter the picture.

Meanwhile, other approaches to modification of the epoxies are also generating interest. To improve flexibility, General Mills is offering polyamides; Irvington Varnish and Insulator Co. (division of Minnesota Mining and Manufacturing Co.), its cashew bis-phenol (CW, Apr. 17) as a starting material in epoxy synthesis.

All told, it's part of an extensive and intensive research effort to develop the potential of epoxies in structural applications, which still take a back seat to coatings where sales volume is concerned.

New TB Trail

Pharmaceutical men in search of better tuberculosis drugs would do well to keep an eye on a promising new class of therapeutic chemicals. They're 1,3,4-oxadiazolones, were uncovered by chemist A. E. Wilder Smith, of Ed. Geistlich Sons, Ltd., Wolhusen, Switzerland.

Following a little-traveled chemical trail, Smith treated isonicotinic acid hydrazide (isoniazid) at room temperature in an inert solvent (or aque-

* Use patents applied for. U.S. Patent 2,466,963, incidentally, covers manufacture of polymers similar to LP-2 and LP-3.

ous acid) with phosgene. Result: the corresponding 2-pyridyl-(4)-1,3,4-oxdiazolone, in good yield.

Testing *in vitro* pegged the chemical's anti-TB activity slightly below that of isoniazid. *In vivo* the oxdiazolone proved more active than the latter in combating guinea pig infections, only about one-tenth as toxic (in the mouse only). With rabbits, the experimental agent showed about one-third the toxicity of isoniazid.

Moreover, dosing rabbits in chronic toxicity tests at 10 times the therapeutic level produced no discernible pathological changes in any organ.

Apparently general for acid hydrazides of the isoniazid variety, the phosgene reaction could sire a prolific brood of potential 1,3,4-oxdiazolone TB-fighters. 2-pyridyl-(4)-1,3,4-oxdiazolone and several derivatives (for which patents have been applied) are now undergoing clinical trials.



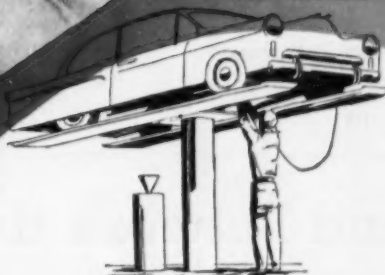
Rare Earth Powered

ELEANOR BARAN, Argonne National Laboratory (of Atomic Energy Commission) staffer, holds the organization's newest development: a small, inexpensive portable X-ray unit that can do a number of industrial and medical jobs. Active component of the device is a tiny particle of the rare earth thulium, made radioactive in a heavy water nuclear reactor. The invention was made possible by the highly efficient rare earth separation techniques recently developed at A.E.C.'s Ames laboratory of Iowa State College.

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Saponification Value 201 to 206
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2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9
10	10	10	10

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Profile of Altruism

A two-year comparison of outlay for the support of scholarships and fellowships by 13 selected companies:

	1953-54		1954-55	
	No.	Value	No.	Value
Allied Chemical	45	\$96,800	46	\$90,500
American Cyanamid	17	37,000	32	48,000
American Potash	7	3,500	2	1,000
Celanese	19	53,800	16	37,400
Eastman Kodak	19	35,000	20	64,000
Du Pont	82	301,000	81	295,000
Merck	12	50,000	7	37,000
Monsanto Chemical	43	59,000	42	54,500
National Lead	8	30,000	8	46,000
Chas. Pfizer	72	72,000	72	72,000
Phillips Petroleum	50	25,000	60	47,000
Procter & Gamble	29	90,000	28	83,000
Visking	9	21,750	1	1,500

Trend Between the Lines

Only a superstatistician could read a trend into the above data on one important facet of corporate benevolence—the support of scholarships and fellowships. Containing the newly finalized aid programs for the coming academic year of a good sampling of the chemical industry, the figures tell an inconsistent story.

More companies (eight) have slashed their educational allocations than have boosted (four) them; but the balance still reflects a net increase over the outlay for the 1953-54 school year.

You must look between the lines for the important story of what is happening in this extracurricular sphere of industrial interest. You will find a growing appreciation of the wisdom of aid at the undergraduate level. It makes sense to a growing body of technical manpower experts who want to broaden the base of trained scientific talent. They feel that there's plenty of money already earmarked for graduate fellowships.

Presumably in line with this reasoning, American Cyanamid Co., for example, has launched a new \$15,000 program of 17 undergraduate scholarships to supplement its existing schedule of graduate fellowships in chemistry and chemical engineering. Allied

Chemical and Monsanto also have upped their scholarship allocations. And Union Carbide has activated a new batch of scholarships that puts its total at 308. Carbide's goal: a \$500,000 program of support for 400 scholarships.

Somewhat afieid of direct undergraduate aid but headed in the same general direction is a new Du Pont allotment intended for the advancement of science teaching. Concerned with the quality of science education, the company has set aside a fund of \$238,500 to be split four ways: \$100,000 to 40 colleges for use as they see fit to bolster their science departments; \$25,500 in summer research grants for chemistry teachers in universities; \$73,000 for postgraduate teaching fellowships in chemistry; and \$40,000 in fellowships for master's-degree training of high-school science and mathematics teachers. All this, of course, is in addition to the company's 81 graduate fellowships.

Aid to education through the support of scholarships and fellowships pays no clearly defined dividends for the companies doing the giving. (Recipients of the aid are almost never obligated in any way to the donor.) In the final analysis, however, it's a sure-fire method of self-improvement;

the entire industry can't help but gain from the efforts of a substantial circle of its farsighted members.

New Entries

A pack of hopeful new products are off and running this week in a race for gainful occupation.

- A highly soluble borate, especially adapted to the preparation of washable, fire-resistant coatings, is the entry of American Potash & Chemical Corp. (Los Angeles). Tradenamed Borotherm, the new material is relatively neutral, may be formulated, the company says, with polyvinyl acetate and other water-based coatings.

Primary function of the new borate: to impart the fire resistance required by coatings and latices to meet Dept. of Commerce specification CS-42-49 (class F) and Federal specification SSA-118-a, respectively.

Borotherm, available in commercial quantities, was developed in cooperation with the paint industry, is claimed to be particularly suited for use in insulating and industrial wall-board coatings.

- Also in the field are eight new benzoic acid esters of polyalkylene glycols—members of Tennessee Products and Chemical Corp.'s (Nashville) Benzoflex series. They span a wide viscosity range, vary in solubility and freezing point; all, however, are characteristically stable, light-colored, mild-smelling and high-boiling.

Two of the compounds, diethylene glycol dibenzoate (Benzoflex 2-45) and dipropylene glycol dibenzoate (Benzoflex 9-88) are claimed to be primary vinyl chloride plasticizers. They reportedly cut resin-processing time and temperature. Moreover, according to Tennessee Products, the dipropylene glycol derivative is the first commercial low-freezing plasticizer of its type. Both materials are commercially available.

The higher glycol dibenzoates are said to be compatible with polyvinyl acetate and selected vinyl resins; and polyethylene glycol dibenzoates reportedly are compatible with phenol-formaldehyde polymers, impart flexibility, boost the adhesiveness of these materials. These higher esters are still in the pilot plant.

- **Charted:** If you're interestd in laboratory services available to the pharmaceutical industry, you'll be interested in a new survey initiated by the American Council of Commercial Laboratories, Inc. ACCL canvassed 62 member laboratories, found 27 competent to perform a variety of

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pharmaceutical research, consulting and analytical services. Who does what is neatly detailed in a chart drawn up by the organization.

Metal Specialist: A titanium analysis section is the newest addition to the facilities of Sam Tour & Co., New York consultant. It's an outgrowth of experience gained by the firm in four years of titanium analysis work for the Army Ordnance Corps.

Strictly for Research: Seven new peptides are beamed at biochemical researchers by Mann Research Laboratories (New York). They're L-alanyl-L-leucine, L-alanylglycine, glycyl-L-alanine, glycyl-DL-isoleucine, glycyl-L-proline, methionylglycine, L-phenylalanyl-L-phenylalanine.

Adding the Bounce: Strong, highly flexible silicone rubber may be a commercial fact sooner than many anticipate. According to research director Frederick Kilbourne of Connecticut Hard Rubber Co. (New Haven), silica-reinforced silicone rubber (which, in some cases, have tensile strengths of 1,850-2,100 psi. and elongations of 850-950%) have been effectively vul-

canized by a process depending for control on small amounts of anti-oxidants. A practical, controllable vulcanization method has been the chief barrier to commercial development of silica-reinforced silicone rubbers. Silica used in the process is very fine, rendered hydrophobic by coating with an alkoxy compound.

Reinvesting: About \$30,000 is earmarked by Research Corp. (New York) for a new West German grants program. Cut 11 ways, the bequest will support research at as many German universities and institutes. The money comes from German royalties on Research Corp. patents for the manufacture of vitamin B₁.

Cleanup Aid: Montmorillonite, a cheap mineral found in almost unlimited quantities in Arizona and Mississippi, is a new candidate for the possible job of decontaminating water after atomic attack.

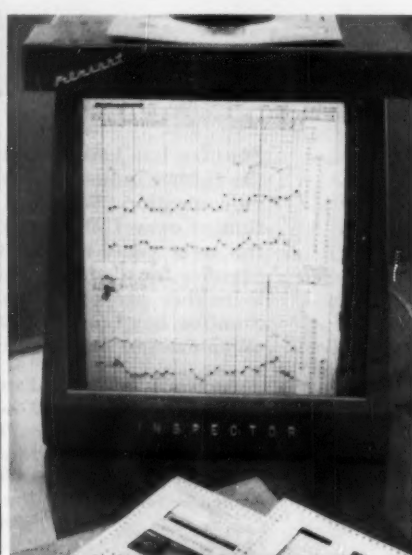
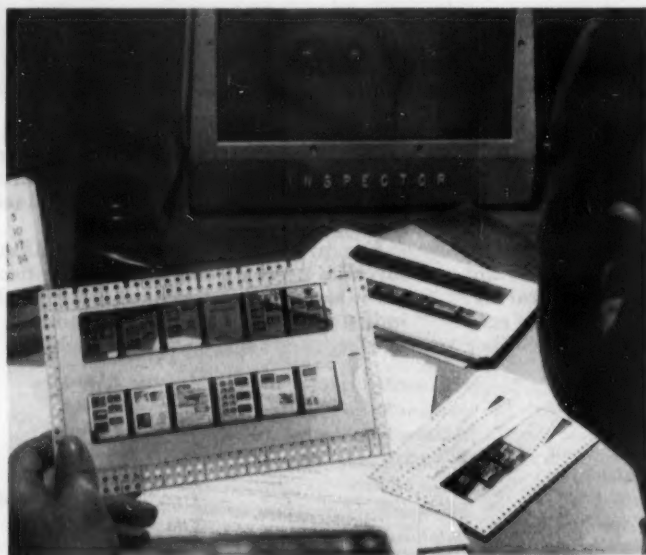
Chemist William Lacy of the Army Engineers' Research and Development Laboratory (Fort Belvoir, Va.) reports that montmorillonite clay can be used to make contaminated water drinkable—usually within a day. The

clay exhibits properties analogous to those of zeolites and synthetic ion-exchange resins; it captures radioactive ions from water, replaces them with nonradioactive species.

Scientists, delving into the atomic waste problem, are investigating a broad sampling of ion exchangers. While not as efficient as several others, montmorillonite clay is considerably cheaper, may consequently be the best for some decontamination jobs.

Color Keepers: Ultraviolet-absorbing compounds may be the answer to a furniture manufacturer's prayer. That's the story being spelled out by research currently under way at Timber Engineering Co. (Washington, D.C.), research affiliate of the National Lumber Manufacturers Assn. TECO researchers have discovered that darkening of light furniture woods is caused chiefly by the action of the sun's rays. Color stabilization has recently been achieved by incorporating sunscreens into the finish.

Jawbreaker: Azobenzenephenylhydrazinesulfonic acid, aldehyde reagent, is new from Techniservice division of Wipaway Products (New York).



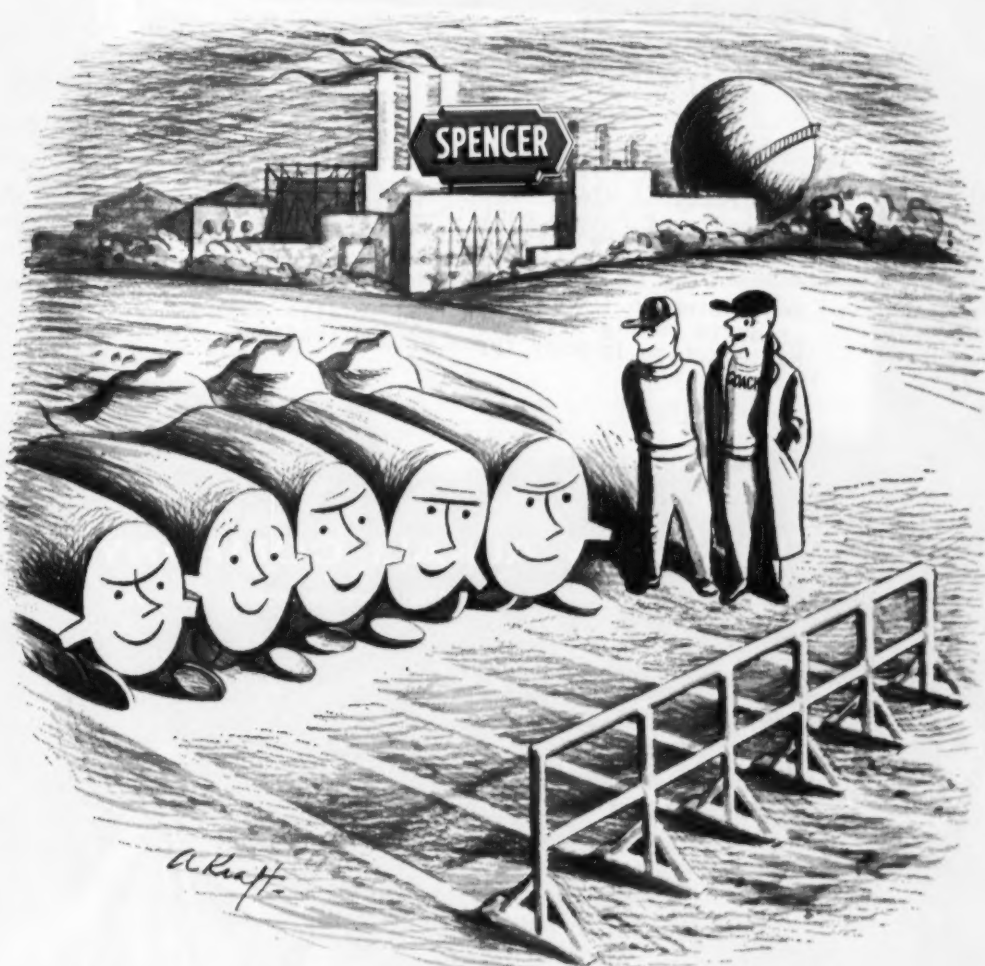
Window Tells the Story

A NEW ANSWER to the literature storing and searching problems of research libraries is the slotted card (left) by Filmsort Inc. (Pearl River, N.Y.). Capable of being inserted into a wide assortment of tabulating and indexing cards (Mc-

Bee, IBM, etc.), the windows hold microfilmed printed material. They may be small, to accommodate one or two 16-mm frames or large enough for six. Each frame bears the contents of a printed page. Cards are coded in accordance with the subject of the mi-

crofilmed documents (research papers, reports, data of all kinds). Sorting then yields the entire literature source (read with the aid of a projector, right)—not merely a reference or abstract. The system, though largely untried in chemical applications, has already proved useful with spectrographic data.

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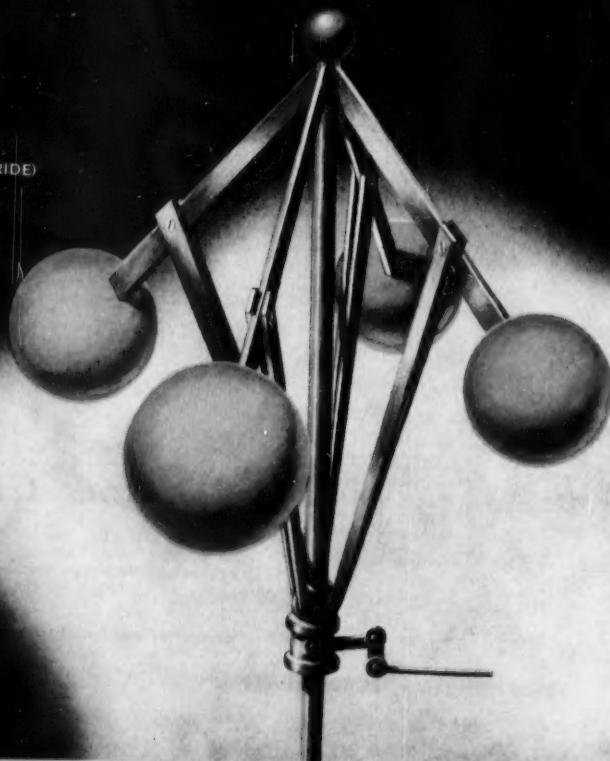
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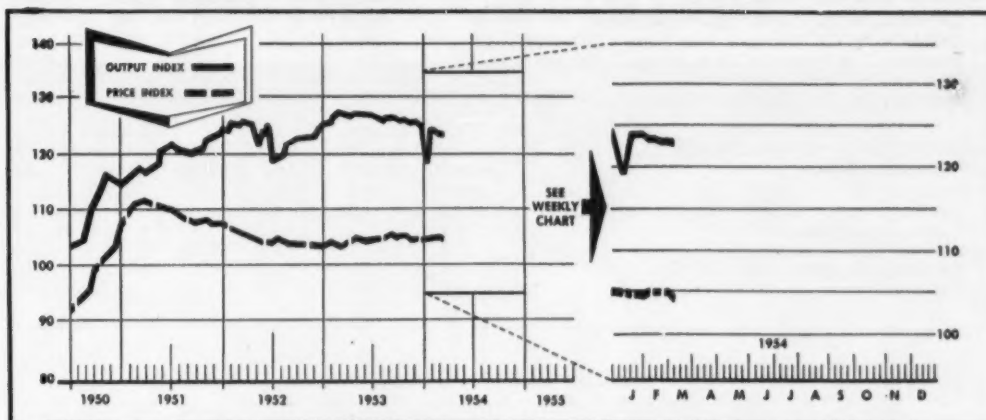
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MARKETS



CW Index of Chemical Output—Basis: Total Man Hours Worked in Selected Chemical Industries
CW Price Index—Basis: Weekly Prices of Sixteen Selected Chemicals

MARKET LETTER

Many chemical buyers and sellers will disagree, but a few of the more optimistic profess to see the first broadening rays of brightening markets.

The divergence of opinions, however, may simply be on a matter of timing. For while the general consensus is that 1954 will wind up as a fairly good year—with chemical business activity on the whole a mere 5-10% off from last year—most feel the definite pickup is still a matter of months away.

There's no doubt, though, that a few chemicals are slowly coming full circle—tight, easing, ample, firmer—as far as supply/demand conditions are concerned. Some coking co-products are good examples.

Benzol, for one, continues to show a surprising come-lately briskness. Trade observers attribute some of its stepped-up movement to consumers' desires to maintain inventories at current levels. That, plus the perking in some benzol outlets—styrene, insecticides, etc.—will likely further stiffen the present well-pegged (about 40¢/gal.) schedules.

Naphthalene demand, too, is somewhat better than it was a few months ago. But while makers' inventories are not heavy at the moment, there's very little danger that any customer will be shorted in the near future. Reason: current capacity is well capable of absorbing far greater demand than now exists.

Two additional factors behind the improved situation for the domestic naphthalene: cutback coke-oven operations over the past several months has reduced the amount of material that had to be sold; absence of competing imported material in the market. The same reasons may well forestall any softening in prices.

On the other hand, keener competition for available business recently has led to some widespread price-shading on a number of chemical products. Biggest flurry, of course, occurred in the plasticizer sector (CW Market Letter, April 17), and the wind is still blowing.

MARKET LETTER

WEEKLY BUSINESS INDICATORS

	Latest Week	Preceding Week	Year Ago
CHEMICAL WEEK Output Index (1947=100)	123.2	123.1	126.7
CHEMICAL WEEK Wholesale Price Index (1947=100)	104.4	104.3	104.5
Bituminous Coal Production (daily average, 1,000 tons)	1,115.0	1,110.0	1,450.0
Steel Ingot Production (1,000 tons)	1,632.0 (est.)	1,636.0 (act.)	2,262.0
Stock Price Index of 13 Chemical Companies (Standard & Poor's Corp.)	293.7	292.2	247.1

MONTHLY INDICATORS—Foreign Trade (Million Dollars)

	Latest Month	Exports Preceding Month	Year Ago	Latest Month	Imports Preceding Month	Year Ago
Chemicals, total	\$73.2	\$64.2	\$56.3	\$23.2	\$23.0	\$24.5
Coal tar products	4.8	4.2	3.8	2.1	4.4	3.9
Medicinals and pharmaceuticals	17.4	15.7	14.3	0.7	0.8	0.5
Industrial chemicals	10.8	9.2	8.5	4.8	4.4	4.9
Fertilizer and fertilizer materials	3.9	3.6	2.5	12.2	10.7	14.2
Vegetable Oils and fats, inedible	8.6	3.8	1.8	1.9	7.2	5.9

Latest to be officially nicked: dibutyl phthalate—down 2¾¢ to 3¢/lb. Tricresyl phosphate sellers, however, are still holding to current prices, and despite some trade observers' belief that TCP-for-"plastics" may also follow the downward trend, chances seem good that official schedules will continue to be maintained.

Some—but not all—acetone producers have bowed to a persistent under-the-market pressure on the solvent. Customers are being presented with a split market—some material offered for 8½¢/lb. (tanks), some at 8¢.

The move was foreseen weeks ago (CW Market Letter, March 27), when supply/demand factors went out of kilter. On the one hand, calls from consumers eased (rayon, plastics, etc.); on the other, new phenol facilities added to available acetone stocks.

A subtraction, rather than an addition, to piled-up stocks was revealed late last week when the U. S. Dept. of Agriculture said it has export-sold some 5.5 million lbs. of raw linseed oil. Two sales, one for 2 million lbs. (at 7.35¢/lb.), the other for 3.5 million at 7.46¢ were made from CCC stocks—destined for "friendly countries."

Another 4.7 million lbs. of the material, which was recently acquired by the agency, will also be put on the block, probably before week's end. These amounts are in addition to the whopping 300 million lbs. of linseed oil—originally purchased at an average of 28¢/lb. and earmarked for defense purposes—which the government is reportedly planning to sell overseas at a loss of about 21¢/lb.

Sharply reduced defense buying—for TNT and aviation gasoline (CW Market Letter, March 6)—has finally dammed up toluene supplies enough to nick a cent/lb. off prices—though at the moment at only two shipping points, Philadelphia and Bayonne, N. J.

Prices of xylene, too, are 1¢/lb. off at the two named points. Behind both the aromatics' reductions is keen competition from recently onstream Eastern facilities.

SELECTED CHEMICAL MARKET PRICE—Week Ending April 26, 1954

DOWN

	Change	New Price		Change	New Price
Diisobutyl phthalate, tanks, c.l., dlvd., E.	\$.03	\$0.29	Toluol, petroleum, industrial, 2°, tanks, works, Bayonne, N.J., and Philadelphia, gal.	.01	.34
Lactose, USP, fib. dms., 30,000 lb. lots, works	.05	.24	Xylol, petroleum, industrial, tanks works, Bayonne and Philadelphia, gal.	.01	.34

All prices per pound unless quantity is stated.

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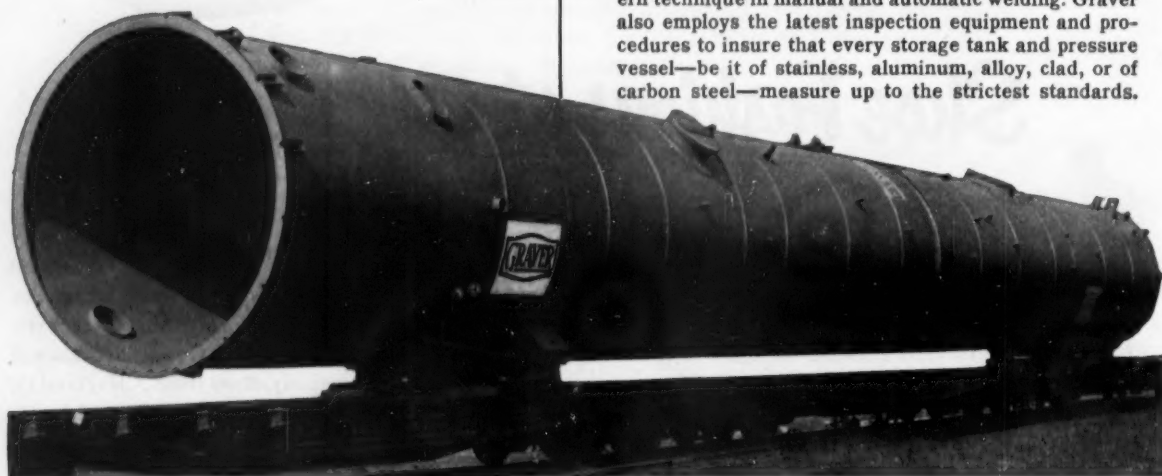
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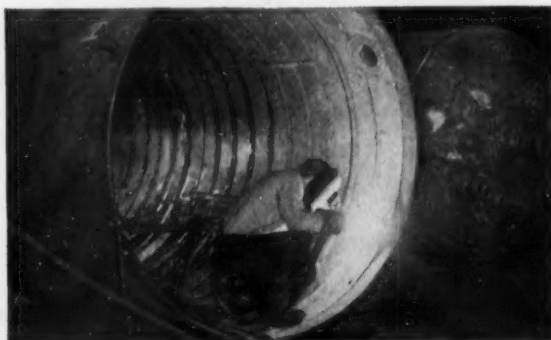


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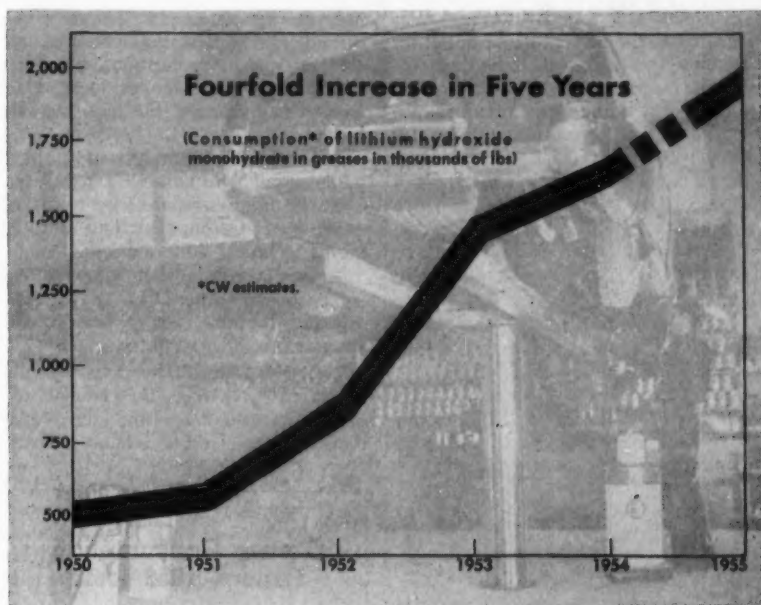
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Lithium Grease Green Light

Among the supply-demand imbalances to be righted this year will be one that has pinched lithium grease manufacturers and discouraged production plans of others. Output of commercial lithium hydroxide monohydrate (see chart)—essential raw material for lithium-soap greases—has lagged well behind demand for several years. Up to now the ceramic industry has been the biggest competitor for relatively meager supplies.

This year, however, promises enough lithium hydroxide to satisfy existing U.S. lithium-soap grease makers and to permit other producers to add this kind of grease to their line. Three lithium producers—Foote Mineral Co., Lithium Corp. of America, and Maywood Chemical—will end the competition for the hydroxide by grease formulators.

Foote Mineral is already augmenting its Exton (Pa.) production of the hydroxide with a near capacity flow from its new Sunbright (Va.) plant and with a scheduled expansion in view. Lithium Corp. is planning to add to its St. Louis Park (Minn.) output of lithium chemicals by breaking ground for a new plant at Bessemer City (S. C.) (CW Market Letter, April 24); but it will not likely turn out any quantities of hydroxide before late 1955. There's even speculation that American Potash & Chemical Co., which has been marketing lithium carbonate from Searles Lake (Calif.),

may add lithium hydroxide to its desert-harvested products.

Indeed, a company official at Foote Mineral tells CW that 1955 production of lithium hydroxide will be nearer 3 million lbs. than the 2 million lbs. shown in the chart (above).

Lithium-soap greases—from 5-10% of a lithium soap makes up a typical lithium grease—have won the designation "multipurpose" by their capacity to take over the specialized jobs done by several conventional greases. For example, one grade of lithium grease can replace:

- sodium-soap greases where high temperatures are met (as in wheel bearings);
- calcium-soap (lime) greases where water resistance is required (as in water pumps) and where subjected to pressure (as in universal gears);
- industrial sodium - aluminum greases where combined resistance to water and high temperature is needed (as in electric motor and other grease-cup applications).

This combination of properties wins markets for lithium greases: high melting point, ability to flow and lubricate at temperatures well below zero, non-emulsification with water, minimal change in consistency with change in temperature, reforming to a stable grease if liquefied, and resistance to oxidation.

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MARKETS

of lithium greases was in World War II aircraft, the current major outlet for lithium greases appears to be the automotive service station. One or two grades of a lithium grease can reduce handling time and storage space for dozens of specialized conventional greases. One lithium-grease gun can replace four or more grease guns typically used at a station. Besides, the use of one grease minimizes the chance that a grease pit worker will apply the wrong product.

Automotive Future: The market potential for lithium greases is staggering. Annual production of lithium lubes has soared in recent years, is estimated to follow a trend that would have been more accelerated had more lithium hydroxide been available.

Production of Lithium Greases (est.) (million lbs.)

1951	54.1
1952	102.4
1953	135.3

Lithium greases now capture about 14% of the entire market (*consumption table*)—a market roughly pegged at annual sales of 1 billion lbs. The future fraction may be multifold, since automotive grease sales are roughly three-fifths of the total sales of all greases and gear oils in the U.S.

Even with greater supplies available, astute market observers are finding consumer psychology a greater hindrance to sales of lithium greases than their price. The auto-grease consumer has been thoroughly sold the idea of using the right specialized grease for each application. It will take additional selling to make him accept a single product for many applications.

Pricewise, automotive lithium greases sell at a few cents more per pound than conventional materials. But most sales managers are quick to say that they're having no trouble selling their lithium greases.

Some current delivered grease prices on the basis of 400-lb. drums (federal tax not included) are:

Grease	Price (¢/lb.)
Lime	11-13
Soda	13-15
Aluminum	13-15
Lithium	16-18

Still in the minor leagues is the multipurpose barium-soap-type introduced by Union Oil Co. of California. Its sales-garnering points: heat and water resistance and minimal breakdown in use; it's said to be more water-resistant than lithium greases;

only one consistency is generally required, although several variants are sold for special applications. But barium grease sales amount to a relatively small share of the total market because

- companies are reluctant to pay patent-holding Union Oil's royalties,
 - barium greases are hard to make—take special equipment and considerable technical skill, and
 - they are muddy in appearance.
- Nevertheless, Union Oil avers that its sales of barium greases have risen steadily for the past three years.

The Old Guard: The mainstays of the industry—before the advent of multipurpose greases and since—are the lime, soda, and aluminum greases

Grease Consumption Pattern 1953 (est.)

Soap or Thickener	Percent of Total Grease
Calcium	42
Sodium	25
Lithium	14
Aluminum	11
Lead	3
Barium, bentonite, and miscellaneous	5

(*consumption table*). Together these three still account for about 80% of the entire market.

The lime (calcium-soap) greases are still the workhorses of the lot; somewhere between 400-450 million lbs. are marketed annually. They're cheapest, but should be used at temperatures below 160 F. They are the traditional automotive chassis grease. Since higher temperatures tend to evaporate the water that acts as a binder of the soap and oil, the oil separates and bleeds away, leaving a troublesome, sticky mass. With oil of proper viscosity, lime greases operate as good lubricants at below-freezing temperatures.

About a quarter of a billion pounds of sodium-soap greases are sold annually in the U.S. They are the typical automotive wheel-bearing grease. Their chief drawback is relatively high water solubility: they become soft if an excess of water is present.

Soda greases don't function too well at temperatures below freezing; however, they can lubricate satisfactorily at temperatures well above 300 F. They have the undesirable property of permanently changing consistency during use. This effect can be overcome partly by cold-working or milling a grease with more than the normal soap content to the desired consistency before use.

Like a lime grease, an aluminum-soap grease cannot operate at high temperatures, will melt at about 175 F. But it's attractive to the customer: translucent and water-resistant. It doesn't have high stability, breaks down under mechanical action, is difficult to make. Aluminum greases are still used for tractors and roller bearings and in central lubricating systems under medium operating conditions, but lithium greases are whittling away their market. Less than 125 million lbs. are sold annually.

If one extends the definition of a metallic-soap grease to a more generalized one: "a solid to semisolid product of the dispersion of a thickening agent in a liquid lubricant," one may call the bentonite lubricants greases.

They have this advantage over the soap-base types: they don't melt or exhibit phase changes. Furthermore, they're stable to mechanical action, bleed just enough to lubricate properly, can be pumped at low temperatures, and yet have consistency at high temperatures. They were put on the market as recently as 1950 by patent-holder Baroid Div. of the National Lead Co. Some find cost a deterrent to the use of bentonite greases.

One of the newest developments in multipurpose lubricants is the so-called synthetic grease. It includes a metallic soap but contains certain modified hydrocarbons in place of mineral oils. For example, when a silicone is substituted for the mineral oil, the grease can function at a wider range of extremely low or high temperatures. Silicone greases are particularly desirable in aircraft, high-speed motors, and in small, permanently packed motors. But price (boosted by high patent royalties) militates against this class of grease except where actual quantities consumed are small, and thus cost is relatively unimportant.

Metallic-soap combinations frequently upgrade even the lithium greases for specific applications. It's said that a calcium-lithium combination is superior to lithium alone in greases used to control chassis squeaks

A billion and then some...



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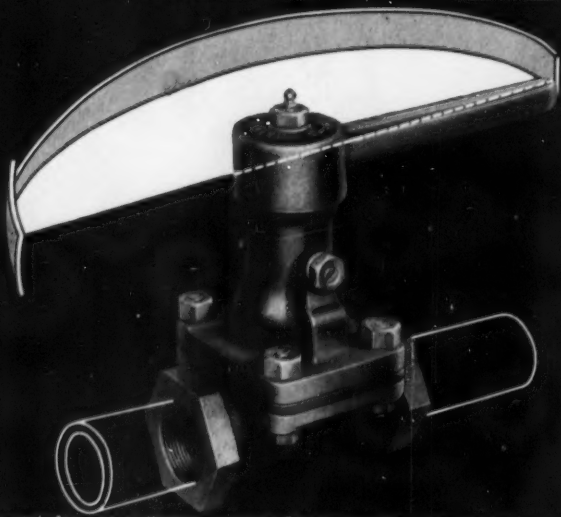


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MARKETS

and in other applications where moisture is met.

Not everyone is predicting a wonder growth for lithium grease sales. One major Western oil firm official tells CW that "if some of the grease developments now in the test-tube stage come along, lithium might be forgotten in five years." This expert mentions that "federal specifications for lithium greases are changing with every order"—a measure of the flux in formulations.

The general view prevails, however, that acceptance of multipurpose greases—particularly the lithium type—will mushroom in the next few years. With sufficient lithium hydroxide at last, concerted sales effort may duplicate the record of one major oil firm. Trade talk is that about 60% of its grease production is now of the lithium class.

Target of Ire: FOA

The Foreign Operations Administration this week again came in for criticism from fertilizer manufacturers who feel that FOA has ignored promises of six weeks ago (CW, March 6) to ease its stringent bidding requirements.

Last week FOA had apparently not budged from its position, asked for bids on 15,000 tons of fertilizer with no modification of bid terms—and still on a tight schedule.

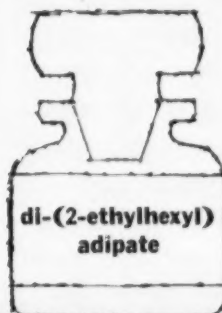
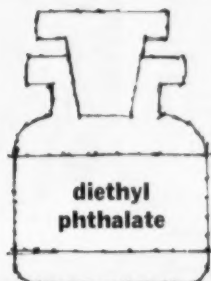
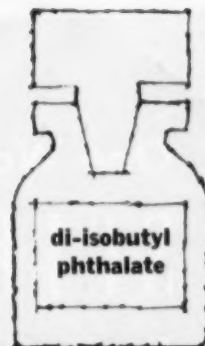
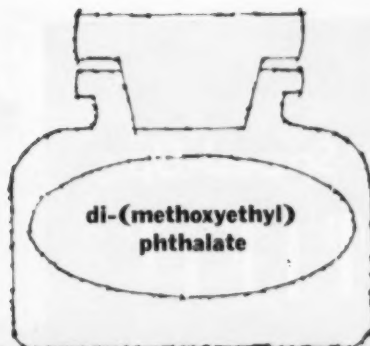
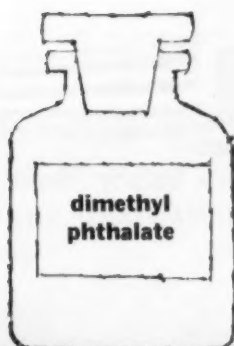
Makers have chafed at FOA's asking for bids on a delivered basis, and on a schedule so tight that foreign producers are almost the only ones who can meet delivery dates.

For example they point to some conditions on the latest 15,000 tons of Karachi (Pakistan)-bound ammonium sulfate:

- Bids were to be received in Washington not later than 1 p.m., Tuesday, April 13;
- Initial shipment of 4,000 long tons was required for loading at port of shipment a scarce 11 days later—April 24.

FOA's Deputy Administrator William Rand and its buying agent, General Services Administration, had agreed to weigh complaints on bidding. They may even subsidize the freight differential brought about by the requirement that half of each fertilizer shipment be carried by U.S. ships.

But on the books the FOA laws don't quite satisfy domestic fertilizer makers. That's where the imbroglio stands now: not forgotten, but in the hands of FOA's legal staff.



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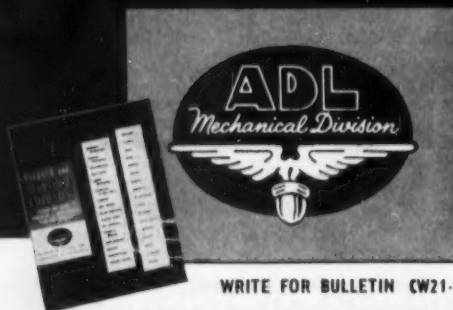
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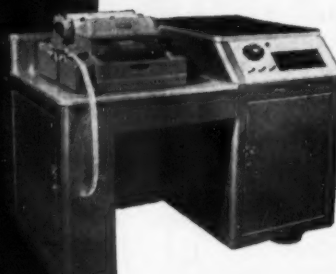
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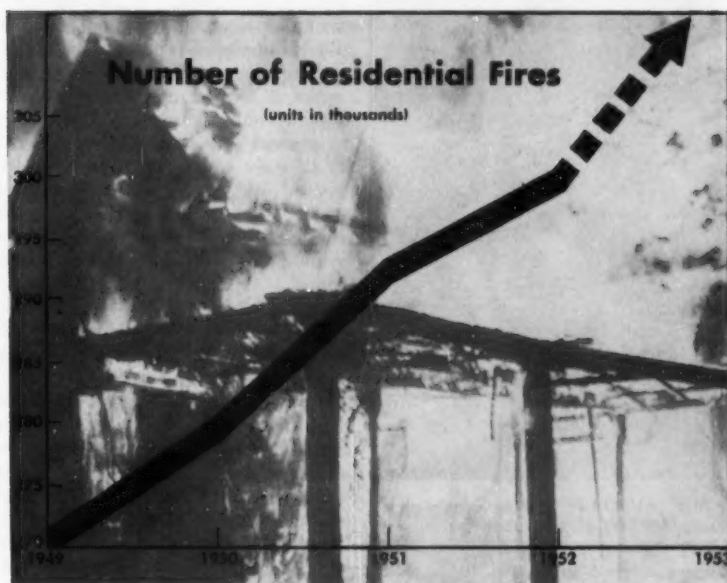
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FIRES wipe out nearly a half million homes a year. Some could be saved but . . .

Protection's Hard to Sell

Like drug makers, fire extinguisher manufacturers have a product few want to buy and none want to use. Necessity has slowly built a \$120-million yearly market, chiefly for industrial applications; but that's only a fraction of the potential that lies in home units—less than 2% of U.S. homes are extinguisher-equipped.

One of the latest firms to stretch for a share of the home market is H&B Sales Corp. (New York), which will test market its Flame-X this month. Flame-X thus joins the fistful of beer-can-size antifire units to appear on store shelves within the past year.

Trail-blazer for the pressure-packed units has been Bostwick Laboratories' Hero. Hero, a one-shot can of carbon tetrachloride, forced out by carbon dioxide, has been on the market since 1949, and has sold over 4 million units (some under other labels) since.

Pound of Prevention: Later came products like Fire Out, made by Al-jay Products, Inc. (New York) and Spee-Dee Fire Extinguisher, made by Spee-Dee Home Products (division of Demert and Dougherty, Chicago). Although they also contain about a pound of extinguishing chemical, the fluid is Freon- or Genetron-propelled. Push-button valves are used, for control of emission.

Most units contain carbon tetrachloride, sometimes with a little tri-

chloroethylene as a freeze depressant. Flame-X is claimed to have a vaporizing fluid lower in toxicity and corrosiveness than carbon tet; it was worked out by H&B with Fluid Chemical Co. (Newark, N.J.).

Small Dose: None of these products carries an approved label from the National Board of Fire Underwriters (although no units of any sort under 1 qt. in liquid capacity now have approval). Some do have the o.k. of independent laboratories, but the U. L. seal is a requisite for any product used industrially, if the plant owner hopes to get a reduction of his insurance premium. Advanced as a prime reason for the nonapproval of aerosol packages is their definitely limited content. They will spray about 20 seconds before they're exhausted, whereas an old soda-acid extinguisher will work for 5 minutes. Also, their spray range—10-15 ft.—has been criticized as being inadequate.

There's no doubt, too, that a more desirable fluid than carbon tetrachloride would be advantageous. It's known to be toxic, and there's no secret that it is difficult to store in either the pump-type units (the pump may "freeze") or in aerosols (gaskets may corrode, valves clog).

The aerosol units are comparatively cheap, however. Priced at \$1-2, the bombs sell at only a fraction of the cost of well-known products like Pyr-

ene's air-propelled carbon tet model at \$7.95, and Ansul's 4-lb. powder extinguisher (sodium bicarbonate propelled with carbon dioxide) at more than \$25. Carbon dioxide cylinders are still more costly.

Selling such high-priced items to cost-conscious householders is hard. Even selling to industrial plants, salesmen have no snap. Industry, however, gets premium reductions when plants are extinguisher-protected. Insurance companies have shied away from this procedure for homes, apparently fearing that householders will, consciously or not, reduce their efforts to eliminate fire hazards.

Sixth Unsealed: Partly because of the expense of approved units, sales of units without the U. L. seal have reached an estimated \$20 million/year. That's a good portion of the home extinguisher business, for the \$120 million spent for all extinguishers includes permanent sprinkler systems, and large, truck-hauled fire snuffers.

And despite its drawbacks, 60-65 million lbs. of carbon tet are yearly used in fire-fighting equipment. Chlorobromomethane is another halogenated hydrocarbon that has racked up good sales, although much of it is currently going to military uses.

Carbon tet best puts out Class C



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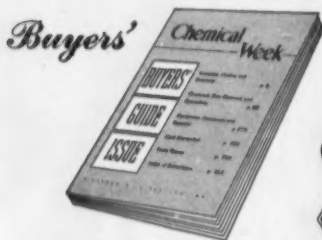


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FIRE AFLOAT: Extinguishers could make 400,000 pleasure craft safer.

fires—electrical fires—and to a lesser extent, Class B fires—flammable liquids. (Water remains the number-one agent against Class A blazes—wood, rags, and the like, which might leave embers.) The carbon tet is propelled by carbon dioxide, compressed air, or—in aerosols—by fluorinated hydrocarbons, themselves extinguishers.

Powder Blanket: Use of dry sodium bicarbonate to snuff out B and C fires has boomed in recent years. Figures aren't available, but dry-type extinguishers are claimed by some to account for a third of total fire-extinguishing unit sales.

As generally employed, the bicarb is kept free-flowing by mixing in about 3% of a combination of calcium phosphate and magnesium stearate. It can be sprayed like liquid-propelled from tanks or pipes by carbon dioxide or nitrogen under pressure. (Ansul, largest firm in the dry extinguisher field, did produce a shaker home device, *see cut*). Hard to beat as a flame snuffer, bicarb can be rather messy around the house.

Carbon dioxide, used in units like C-O-Two and Kidde cylinders, has high effectiveness, cleanliness, and convenience, but it's still comparatively expensive.

Smothered in Foam: Other commonly used compounds are foam producers in water—either sodium bicarb and aluminum sulfate, or a protein material that forms foam when mechanically whipped. Surface-active agents, for making water "wetter", are common now, and water has found broader application when "fogged" on oil or gasoline fires.

Individual problems in industry

have demanded special research to reduce fire hazards. Increasing use of flammable metals like magnesium, for example, has made table salt (along with a plasticizing agent to make it form a crust) and graphite modifications valuable in fire fighting.

Around the home, though, 12% of fires are caused by misuse of electricity, and nearly 25% by matches or smoking. Carbon tet is serviceable for smothering these, and it has been widely used for half a century or more. It's packaged in a number of ways: in sealed glass bombs to be tossed on the blaze (or automatically broken by the heat), and in polyethylene squeeze bottles.

Catch Them Small: All of these, like the aerosols, are small. They can be of little or no help in putting out a big fire. That's one of the major complaints from makers of approved extinguishers—limitations of the devices aren't plainly indicated to buyers, or clearly impressed on them. They feel purchasers can be overcon-



Rodenticide Flies

FIVE HUNDRED pounds of Monsanto's Compound 1080 (sodium fluoroacetate) is loaded at St. Louis airport for flight to Mindanao, second largest of the Philippine Islands. The air shipment, arranged by the Philippine govern-

fidant about the protection offered.

Besides carbon tetrachloride products, chlorobromomethane has been used in some Genetron-propelled, refillable units. One is Little Giant, made by Berna Corp. (Richmond Hills, N.Y.), priced at \$4.95.

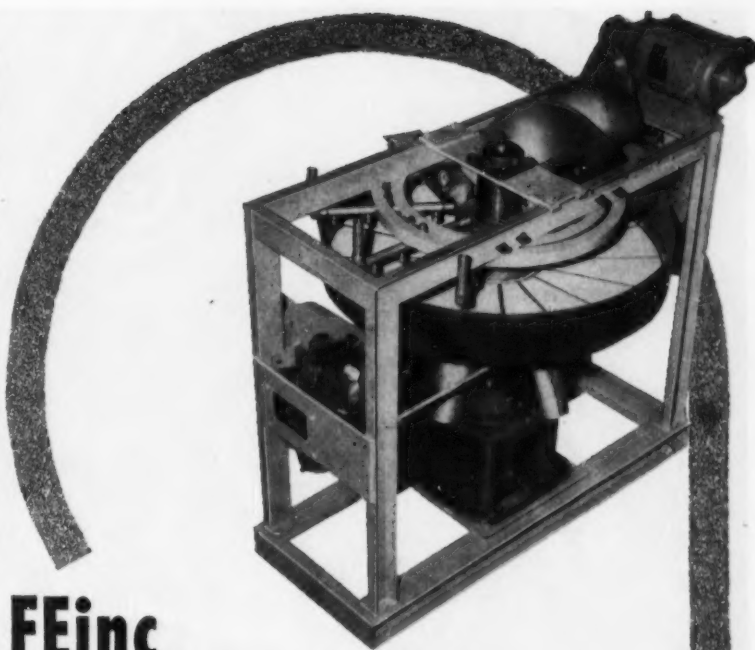
Several small-size sodium bicarbonate units are offered such as the 11-oz. polyethylene bottle package made by Decorative Glass Co. (Evanston, Ill.). Some aerosol fillers have been testing antifire bombs filled with pure Freon or Genetron. Freon is also the sole content of a warning device made by Fyr-Larm, Co., Inc. (Summit, N.J.). It has a release that breaks at 140 F and blows a shrill whistle for five minutes.

There is little doubt that there is need for fire protection such as these units offer. The nation's 30 million individual homes, 400,000 pleasure boats, and 45 million automobiles certainly offer a giant potential market. Aerosols could extract a handsome profit from these potential users.



to the Rescue

ment, stems from a battle the island's population is having against brown rats, which are rapidly destroying rice and corn crops. The potent rodenticide was developed for the U.S. government and is made by Monsanto.



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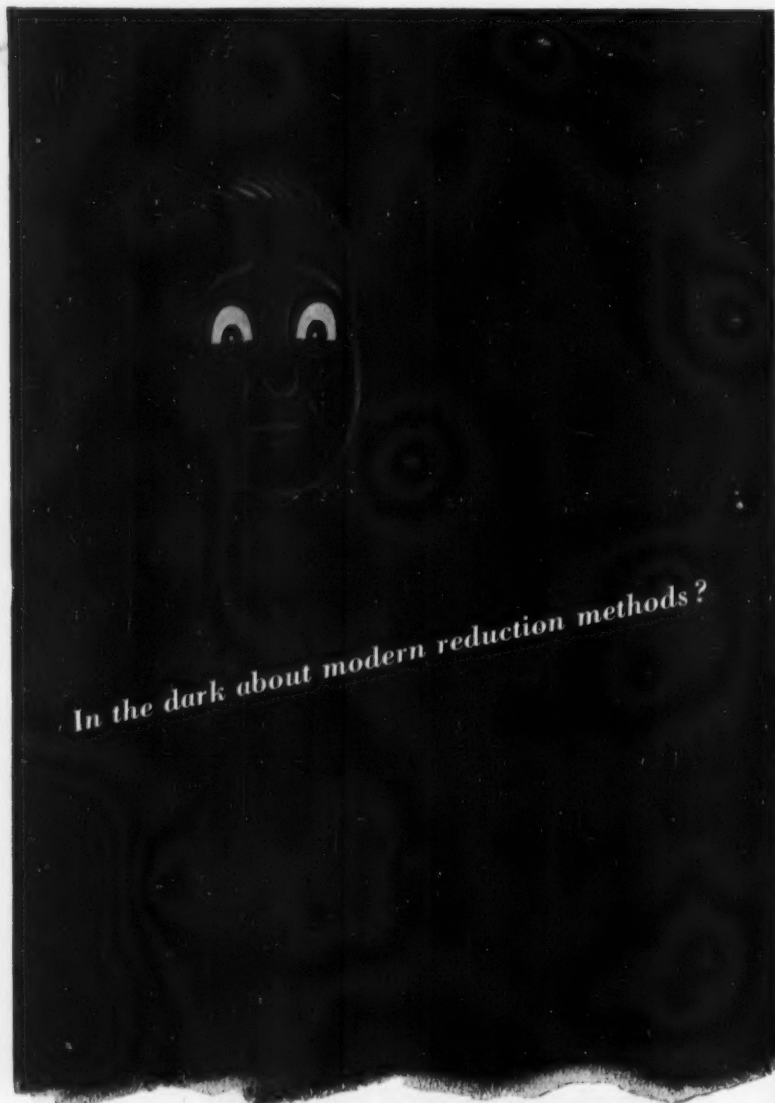
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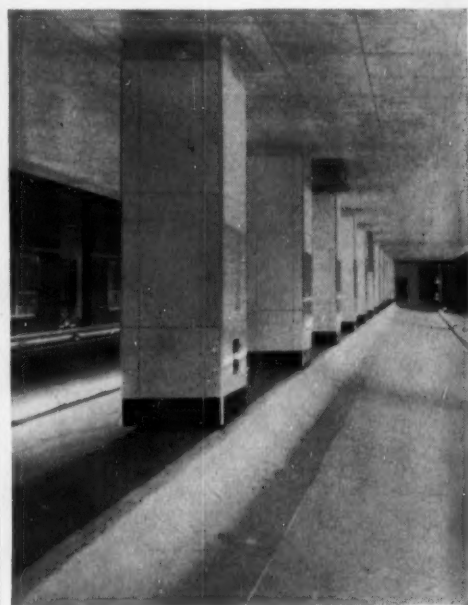
Add as You Go

This week motorists in Connecticut, New Jersey and New York will be able to buy tricresyl phosphate in cans. The product has the tradename Hi-Test and is made by the recently formed Vickers Chemical, Ltd. (New York).

What makes the item timely is the push most major oil firms have given this spring to gasoline additives. As a result, just about every type of premium gas is said to contain something special. Of the companies that use TCP, only Shell calls it that.

According to Irving Green, Vickers president, car-owners buying Hi-Test can now have the benefits of TCP without having to pay the higher price of premium gases.

The product retails for \$2 for a 12-oz. can, which the maker says holds enough to treat 180 gal. of gas—"enough for a coast-to-coast trip." Application is by a 1/8-oz. jigger (included with can). "This much added to each 5 gal. of gasoline gives up to



One Out Of A

GOOD REFLECTANCE in a finish based on Hercules' Parlon chlorinated rubber makes concrete ceilings in Toronto's new \$50-million underground stations positively unsubwaylike. Over 100 different paints were tested before this one, made by Lowe Brothers

15% more power!" Vickers newspaper ads state. Cost is placed at around 1¢/gal.

Other claims for Hi-Test are that it will prevent "missing, misfiring and rough engine caused by preignition and lead-fouled spark plugs," that it will give more pep on acceleration, more miles per gallon, 50-150% longer spark plug life.

Distribution will be through service stations and auto supply stores. Whether it will go national depends on the success of its "initial phase" in the three-state area.

Green's previous experience in additives was as vice-president of Liqui-Moly, the molybdenum disulfide-containing oil additive. Motorists he seeks to sell are the owners of cars with high-compression engine and owners of older-model cars who do a lot of city stop-and-go driving.

Whether Hi-Test will go over is naturally a matter of speculation. One thing that will help it is that advertising by the big oil companies has made the public additive-conscious.

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For Industry: Here are some of the newest products:

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- Magnus Chemical Co., Inc. (Garwood, N.J.): D-Scale-RW, an inhibited acid cleaner recommended for removal of rust and scale in metal-working operations.

- Enjay Co., Inc. (New York): an antioxidant additive that prevents rancidity in fats and acts as a preservative of rubber and plastic parts in food processing. It's marketed under brand names Paranox 441 and Deenax.

- W. S. Shamban & Co. (Los Angeles): Kelon-T (T for Telfon) tape, which because of its electric properties and resistance to corrosive chemicals is recommended for applications in electrical, hydraulic, aircraft and food industries.

- Water Treatment Co. of America (Pittsburgh): a series of new boiler cleaning formulas. The maker says the formulas are colloidal, dubs them Series 31-H.

- Alfred Hague & Co. (Brooklyn): chlorinated rubber emulsions under the name of Rubalt PE-16 Clear.

Consumer Aimed: Among the many are these:

- Hosid Products, Inc. (Syracuse, N.Y.): Glamur With Moth-Gon, a rug and upholstery cleaner with a moth preventive. Price: \$2.75/qt.

- Speedry Products, Inc. (New York): Magic Marker, a nonliquid ink said to write on anything—cloth, paper, glass, wood, leather. It comes in nine colors, is indelible, won't smudge or smear off.

- Reardon Co. (Chicago): a liquid masking tape called Handy Dan. It comes in a can with brush attached to screw cap. A 4-oz. size costs 98¢.

- Sharp & Dohme (Philadelphia): Topatar Cream, a coal-tar preparation for treating a wide range of dermatoses.

- Segimont Corp (Detroit): Hypo-Tonic, a room deodorant. Application is either by a spray nozzle or a needle, which allows internal treatment of mattresses, furniture cushions, etc.

See-Through Cement: Naval Research Lab investigators have come up with a new optical cement claimed to be superior to commonly used Canada balsam and other cements. It is made by plasticizing cellulose caprate, is virtually colorless, has high bond strength over a wide temperature



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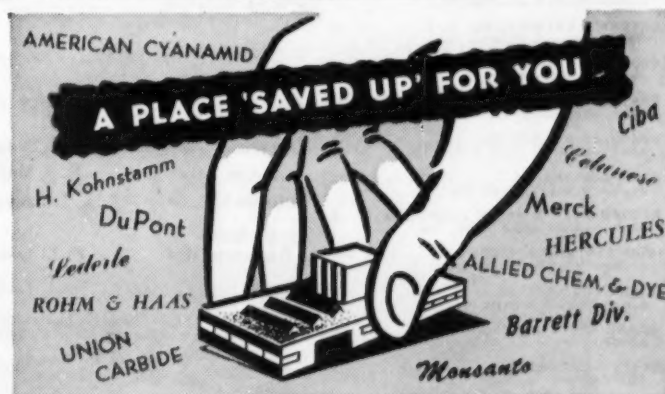
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Foamed-In-Place Resins: Isocyanate Products, Inc. (Wilmington, Del.) is producing foamed-in-place resins based on reaction products of polyisocyanates. The two-part liquid formulations are tradenamed Ipi-Isofoam. Claims: high strength, low density, thermal insulation, resistance to moisture and mould.

Shock Preventer: Ex/Static is being sold by The Ag-Lab Products, Inc. (Columbus, O.) to prevent shocks due to static electricity. It's recommended for any clothing made of synthetic fiber, as well as for carpeting, plastic furniture, draperies. Price: \$1.39 6-oz. bottle.

For Metal Finishing: Enthone, Inc. (New Haven, Conn.) has brought out two products for the metal finishing industry. Chromekill 4A is a reducer used for destruction of hexavalent chromium in alkaline cleaning and plating solutions. Stripper S-18 removes epoxy-type and other enamels.

Cold Filler: All-State Welding Alloys Co. Inc. (White Plains, N. Y.) is now selling its Metal-Filler, a cold solder suggested for a variety of applications: repairing surface holes or building up castings, fixing pipe or tank leaks, etc. It can be machined and painted like the base metal, and it will bond permanently to any metal, wood, plastic or glass, the maker says. Product is composed of aluminum, an organic stabilizer and solvent.

Skin Saver: Kerodex, a protective cream for hands, is being introduced for industrial use by Ayerst Laboratories, Inc. (New York). Two formulations are sold, one for "dry" work, the other for "wet" work.

Dairy Cleaner: Raydex is a new granular alkaline detergent formulation introduced by Pennsylvania Salt Co. for cleaning dairy equipment and food processing machinery. Claimed to contain no abrasives, the cleaner is made in Pennsalt's Wyandotte, Mich., plant, is packaged in 125 and 350 lb. drums.



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REICHHOLD CHEMICALS, INC.

525 NORTH BROADWAY, WHITE PLAINS, N.Y.

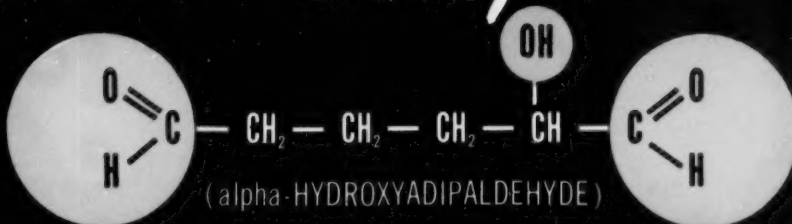
*Creative Chemistry...
Your Partner
in Progress*

REICHHOLD



Synthetic Resins Chemical Colors Phenol Glycerine Phthalic Anhydride Maleic Anhydride Sodium Sulfate Sodium Sulfite

Consider these points...



IF YOU WANT...

- * A reactive intermediate for synthesis or resin manufacture.
- * An insolubilizing agent for proteins and polyhydroxy materials.
- * A cross-linking agent for polyvinyl acetal and polyvinyl acetate.

Properties of

25 per cent aqueous solution

Specific Gravity at 20/20°C. 1.066
 Vapor Pressure at 20°C. 17 mm. Hg
 Freezing Point. -3.5° C.
 Absolute Viscosity at 20°C. 2.6 cps.
 pH Approx. 3.0

alpha-HYDROXYADIPALDEHYDE is another new commercial dialdehyde from Carbide and Carbon. Because of its reactivity, it is supplied as a stable, 25 per cent aqueous solution of high purity and low odor. It is available now in 55-gallon drums and larger quantities will be available soon.

Additional Technical data and Samples

available on request. Simply call or write the CARBIDE office nearest you. Offices located in principal cities.

20 ALDEHYDES...

are produced by Carbide and Carbon, including acrolein, glyoxal, acetaldol, malonaldehyde (tetraethoxy propane), and succinaldehyde (diethoxy tetrahydrofuran). When you want an aldehyde, call CARBIDE.

**CARBIDE
AND CARBON
CHEMICALS**

Carbide and Carbon Chemicals Company

A Division of
Union Carbide and Carbon Corporation

30 East 42nd Street  New York 17, N. Y.